

**EBAC MODEL BD150
INDUSTRIAL DEHUMIDIFIER
OWNER'S MANUAL**

Ebac Commercial Ltd
St Helens Trading Estate
Bishop Auckland
Co. Durham
DL14 9AD
Telephone: (01388) 664400 Fax: (01388) 662590
Website: www.ebacuk.com

UNPACKING

Carefully remove the BD-150 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 BD-150 dehumidifier is a robust, compact unit designed to control the humidity in the enclosed space in which it is placed.

The unit is thermally protected and will switch off for a period if the maximum operating temperature of 35°C is exceeded.

The BD-150 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.

Handles and large wheels contribute to its portability.

The gas which is used inside the hermetically sealed refrigeration circuit is R407c which has been passed as a none ozone depletion factor by the Montreal protocol. But under no circumstances should this gas be released into the atmosphere, the unit should be serviced by trained personnel who will reclaim any of the unwanted gas.

SPECIFICATIONS

MODEL:	BD150
HEIGHT:	915mm
WIDTH:	610mm
DEPTH:	629mm
WEIGHT:	75 Kg
AIRFLOW:	1114 cfm ³ /hr
POWER SUPPLY:	115v, 1 ph, 60Hz
POWER	1.5Kw (max)
FINISH:	Epoxy coated zintec steel
MOBILITY:	Light in construction and easily positioned
EFFECTIVE VOLUME:	575M ³
REFRIGERANT TYPE/QTY:	R22c (0.540g)

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/plug of the dehumidifier unit to a 16 Amp power supply. As follows:-

115 Volt Supply

Black	Live
White	Neutral
Green	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 unit.

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:

If the ambient temperature of the room in which the dehumidifier unit is conditioning falls below 15°C ice will form on the evaporator coil as the air is passed over it, after a time this build up of ice on the evaporator coil will effect the efficiency of the unit, on its ability to maintain the required set conditions for the room.

The BD-150 is therefore fitted with a defrost control device. This defrost control device is timed to operate every 45mins, at which time, for approximately 4mins the high pressure gas is diverted by means of a by-pass valve to enter the evaporator coil. The effect of this high pressure gas entering the evaporator coil is to melt any build up of ice on this coil. The melted ice is collected and disposed of by means of the condensate tube.

HIGH TEMPERATURE CUTTOUT:

The BD-150 dehumidifier has been designed to work in ambient conditions of 0°C to +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.

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.

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>
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 	<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
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

Ebac Commercial Ltd
 St Helens Trading Estate
 Bishop Auckland
 Co. Durham
 DL14 9AD
 Telephone: (01388) 664400 Fax: (01388) 662590
 Website: www.ebacuk.com

BD-150 SPARE PARTS LIST

<u>DESCRIPTION</u>	<u>PART NUMBER</u>
	<u>1025000</u>
Compressor	3020116
Compressor OH Protector	3031728
Run Capacitor	3036337
Start Capacitor	3030813
Condenser Coil	3020727
Evaporator Coil	3020732
Filter Dryer	3020904
Fan Motor Assembly	3030126
Fan Blade	4000116
Reverse-Valve	3020810
P.C.B Timer	1600500
Solenoid Coil	3030420
Contacto	3034393
Mains Cable	3031202
Straining Bush	3032501
Clip Nut	3080501
Terminal Block	3031460
Selector Switch	3030555
Start Button	3032031
Drain Tray	1025002
Wheel 13"	3050101
Worm Drive	3086116
M20 Gland	3032547
M20 Gland Nut	3032504