Ebac Ltd
COMMERCIAL DIVISION

Drawing No.	:-	TPC225
Issue	:-	2
Date	:-	16/12/03

EBAC MODEL CD35
INDUSTRIAL DEHUMIDIFIER
OWNER'S MANUAL

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INTRODUCTION

Designed for a wide range of applications, the CD35 is a rugged, compact unit which incorporates its own tank for collected moisture with an automatic shutoff once the tank is fully. Offices, shops, houses, restaurants and storerooms can be protected by this simple answer to humidity control.

The CD35 has a number of special features:

- Adjustable humidistat
- "Hot Gas" defrost system with solid state controller
- Whisper-quiet fan
- Water tank with "full" indicator lamp
- All galvanized interior
- Exterior epoxy powder-coated finish
- Four independent heavy-duty castors
- Fully enclosed coils

The fan draws the moist air through the cold evaporator coil, which cools the air below its dew point. Moisture forms on the evaporator coil and is collected in the condensate tray, which is equipped with a permanent drain. The cooled air then passes through the hot condenser coil where it is reheated using the same energy removed during the cooling phase, plus the additional heat generated by the compressor. The air is, therefore, discharged from the dehumidifier at a slightly higher temperature with a lower absolute humidity than that which entered. Continuous circulation of air through the dehumidifier gradually reduces the relative humidity within the area.

The CD35 dehumidifier is a rugged, reliable drying unit designed to operate effectively over a broad range of temperature and humidity conditions. An active hot gas defrost system, controlled by an electronic timer, guarantees positive de-icing, thereby optimizing operation at low temperatures.

The unit incorporates a welded and galvanized steel chassis and is finished in an epoxy coating for resilience to damage caused by rough handling.

The CD35 dehumidifier is fitted with an adjustable humidistat to enable you to select the level of dryness that you desire.

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SPECIFICATIONS

MODEL:	Ebac CD35
HEIGHT:	21”
WIDTH:	14”
DEPTH:	14”
WEIGHT:	57 lbs
AIRFLOW:	170 CFM
POWER SUPPLY:	115V–120V/ 60Hz/ 1 ph
AMPS(MAX):	4
FAN MOTOR:	1/50 HP Magne Tek Totally Enclosed
COMPRESSOR:	¼ HP Heavy Duty Fully Hermetic Tecumseh
CONTROL:	Adjustable Humidistat
REFRIGERANT:	R-134a
REF. CHARGE:	0.17Kg
CONSTRUCTION:	18 AWG Epoxy Power Coated galvanized steel
FEATURES:	Hot Gas Defrost down to 33 Deg. F

FEATURES

The Adjustable Humidistat: The adjustable humidistat enables you to maintain the required level of dryness within a room. The humidistat switches off the CD35 when the relative humidity falls to the level predetermined by the position of the humidistat control.

The Water Tank: When the water tank has reached its capacity, a float mechanism will activate a microswitch lever and switch off the machine. The container-full indicator will also illuminate.

Before emptying the water container, disconnect the power supply and allow the dryer to stand for five minutes. Remove the container from the rear of the unit and when emptied, replace, taking care to ensure that the float mechanism is correctly positioned. Restart unit as instructed in the following Operation section of this manual.

UNPACKING & INSTALLATION

After removing the CD35 from its shipping container, visually check for signs of damage. If there is evidence of damage, do not operate. Call your supplier for advice. Do not discard the packing as it will be useful when transporting the machine in the future.

Wiring: Connect the power cord to a grounded single phase, 15 Amp fused, standard household wall socket.

POSITIONING

Single Room: Position the CD35 in the center of the room to be dried. However, if a damp patch is particularly apparent, the outlet grille should be directed towards it. If the CD35 cannot be positioned centrally, a minimum space of 6” should be allowed around the dryer.

Several Rooms: To dry a number of rooms simultaneously with the most efficiency, the dryer as to be positioned between the rooms. Ensure that all doors are left ajar allowing a patch for the air to circulate to the unit. An auxiliary circulation fan would be helpful.

SPECIAL FEATURES (where fitted)

CONDENSATE PUMP:

The CD-35 dehumidifier unit can be fitted, either in the factory, or as retro-fit, with a condensate pump. This condensate pump will allow the unit to run unattended, with the condensate run off to a permanent drain and can be used up to 150 feet (50 meters), below the level of a permanent condensate drainage point.

HUMIDISTAT CONTROL:

The CD-35 dehumidifier unit is fitted with a control humidistat which measures the relative humidity of the air within the room. 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.

TEMPERATURE CONTROLLED DEVICE:

The CD-35 dehumidifier unit is fitted with a temperature sensitive device which operates in conjunction with the defrost control. In normal operation the defrost control will come into operation every 45 minutes. This is to ensure that there will be no build up of ice at lower temperatures. At very low temperatures it is still possible for the defrost device not to clear the ice completely from the evaporator coil. To ensure that even at these very low temperatures all the ice is cleared from the coil, the temperature control device will stop the fan (preventing air movement). This will increase the temperature of the evaporator coil even higher, causing all the ice to melt from the coil during the defrost mode. Where year round conditions need to be maintained, the dehumidifier unit will have to operate across a wider range of temperatures. To ensure that the dehumidifier unit operates at its most efficient, the temperature control device will restrict the defrost operation to the times when the ambient temperature falls below 25°C.

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 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"/150 mm) 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 20°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

SYMPTOM	CAUSE	REMEDY
Unit inoperative	1. No power to unit	1. Check the power from power supply panel
Little or no airflow	1. Loose fan on shaft 2. Fan motor burnt out 3. Dirty refrigeration coils 4. Loose electrical wiring 5. Fuse blown or circuit breaker tripped	1. Tighten fan 2. Replace the fan motor 3. See *Routine Maintenance* 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	1. Insufficient air flow 2. Compressor fault 3. Loss of refrigerant gas 4. Blocked filter dryer	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	1. Faulty timer 2. Faulty by-pass valve	1. Contact the Factory Service Center 2. Contact the Factory Service Center
Unit vibrates excessively	1. Loose compressor 2. Damaged fan	1. Tighten the nuts on the compressor mounts 2. Replace fan
Water flooding inside the machine	1. Drain pipe blocked/frozen 2. Drain pipe too high 3. Crimped or blocked tubing 4. Defective Pump	1. Clear the obstruction 2. Ensure that no section of the drain hose is above the level of the water outlet 3. Straighten, clear, or replace tubing 4. Replace pump
Hissing noise from the machine	1. Machine defrosting – normal operation	N/A

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SPARE PARTS LIST

Part Number	Description
1018611	EVAP COIL ASSY
1137907	WATER CONTAINER
2013865	MICROSWITCH SUPPORT
2013866	MICROSWITCH LEVER
2017707	HUMIDEX 7 KNOB
2131107	HUMIDEX DRAIN TRAY
2131147	CONDENSER COIL
3014272	CAPILLIARY TUBE .031 Already Cut
3020811	BY-PASS VALVE
3020937	FILTER DRYER
3033033	MICROSWITCH
3035145	HUMIDISTAT
3035346	PANEL MOUNTED TERMINAL BLOCK
3036636	RED LAMP ASSY
3040181	FAN BLADE
3050216	CASTOR
1617990	PCB
2141095	MAINS POWER CABLE
3021518	COMPRESSOR BOX COVER
3021543	OHP
3021544	RELAY
3022147	COMPRESSOR
3030421	SOLENOID COIL
3035773	MOTOR
2018641	EVAPORATOR COIL
1600500	PCB (Pre-95 Model)
3030275	110V RELAY (Pre-95 Model)
2013837	DRAIN TRAY