

# **ECO85**

## **INDUSTRIAL DEHUMIDIFIER**

### **OWNER'S MANUAL**



**[www.eipl.co.uk](http://www.eipl.co.uk)**

## INTRODUCTION

Designed for a wide range of applications, the ECO85 dehumidifier is a rugged, industrial unit which utilizes an energy-efficient compressor and a compact portable design to provide easy efficient drying.

The ECO85 has a number of special features:

- Compact Size
- High efficiency rotary compressor
- Ebac's "**Hot Gas**" defrost system
- Exterior epoxy powder-coated finish
- Provision for permanent drainage
- Extra long power cord

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 ECO85 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 dehumidifier unit is fitted with a transformer which will allow the unit to operate on either 110volts or 230volts 1ph 50Hz power supply.

All electrical components within the dehumidifier are rated for 110volts, for safety reasons. The voltage change over (selector switch) switch, can be found mounted to the back of the electrical panel accessed via the outlet panel.

## SPECIFICATIONS

**MODEL:** ECO85

**HEIGHT:** 700mm

**WIDTH:** 480mm

**DEPTH:** 390mm

**WEIGHT:** 50 kg

**AIRFLOW:** 650 M<sup>3</sup>/Hr

**EXTRACTION:** 30L / Day

**POWER SUPPLY:** 230V / 110V - 50Hz / 1 ph

**FINISH:** Powder-coated Epoxy

**OPERATING RANGE:** 3°C – 35°C

**REFRIGERANT:** R-407c ( g)

*"This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. The refrigeration system is hermetically sealed.*

*The Global Warming Potential (GWP) of refrigerants used in products manufactured by Ebac Industrial Products Ltd is as follows*

*R134a – 1300*

*R407c – 1610*

*For type and weight of refrigerant contained in this unit, please refer to the product data label"*

## OPERATION

The following procedures should be followed to test the ECO85 for correct operation:

1. After unpacking, examine all external features to confirm damage-free shipment. Report all defects and damage at once. Connect the power cable to a grounded electrical outlet. Connect the drainage outlet to a suitably sized hose and run the hose to a permanent drain.
2. Check dehumidification process as follows:

TO ENSURE CONTINUED FULL EFFICIENCY OF THE  
DEHUMIDIFIER, MAINTENANCE PROCEDURES SHOULD BE  
PERFORMED AS FOLLOWS:

- A. Place unit on a level surface.
- B. Start up unit by connection to mains supply and switching the on off switch to the 'I' position.
- C. Check that the compressor is running.
- D. Leave the machine running for 15 minutes.
- E. Observe the evaporator coils through the evaporator filter panel
  - i. If the air temperature is below 80° F, an even coating of frost should cover the entire evaporator coil
  - ii. If the air temperature is above 80° F, frost and/or droplets of condensed water should cover the entire evaporator coil.
- F. After continuous running time of approximately 55 minutes, the unit will enter "Hot Gas" defrost mode for 5 minutes and then automatically return to normal operation.

**If, after carrying out the above procedures, the unit does not appear to function properly, refer to the *Trouble Shooting* section, which follows, or contact the Factory Service Center.**

**CAUTION:**  
ONCE THE UNIT HAS BEEN SWITCHED OFF, WAIT AT  
LEAST FIVE MINUTES BEFORE RESTARTING.

After using the ECO85, turn it off for 5 minutes to allow the condensate on the coils to drain into the pump reservoir, then turn it back on and press the momentary purge switch for twenty to thirty seconds to evacuate the water from the pump reservoir.

## ROUTINE SERVICE

**WARNING:**

ENSURE THAT THE POWER CORD TO THE MACHINE HAS BEEN DISCONNECTED BEFORE CARRYING OUT ROUTINE SERVICE. THE SERVICING AND REPAIR OF THIS UNIT SHOULD ONLY BE CARRIED OUT BY A SUITABLY QUALIFIED PERSON.

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 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 evaporator filter cover. The evaporator coil should be evenly frost coated across its surface. At temperatures above 80°F, 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 55 minutes. The machine will then enter "Hot Gas" defrost mode for approximately 5 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>
<b>Unit inoperative</b>	1. No power to unit	1. Check the power from power supply panel
<b>Little or no airflow</b>	1. Fan motor burnt out 2. Dirty refrigeration coils 3. Loose electrical wiring	1. Replace the fan motor 2. See <i>Routine Maintenance</i> Section 3. Check the wiring diagram to find fault and repair
<b>Little or no water extraction</b>	1. Insufficient air flow 2. Compressor fault 3. Loss of refrigerant gas	1. Check all of the above 2. Contact the Factory Service Center 3. Contact the Factory Service Center
<b>Little or no defrost when required</b>	1. Faulty timer 2. Faulty by-pass valve	1. Contact the Factory Service Center 2. Contact the Factory Service Center
<b>Unit vibrates excessively</b>	1. Loose compressor 2. Damaged fan	1. Tighten the nuts on the compressor mounts 2. Replace fan
<b>Water flooding inside the machine</b>	1. Drain pipe blocked/frozen 2. Drain pipe too high 3. Crimped or blocked tubing	1. Clear the obstruction 2. Ensure that no section of the drain hose is 1M max. above the level of the water outlet 3. Straighten, clear, or replace tubing

## ECO85 SPARE PARTS LIST

<u>NUMBER</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>	<u>QUANTITY</u>
1	Defrost Timer	1619508	1
2	Terminal Block	3031460	1
3	Capillary Tube	3014254	2 x 24"
4	Solenoid Valve	3020837	1
5	Filter Dryer	3020909	1
6	Compressor	3944932	1
7	Solenoid Coil	3030451	1
8	Run Capacitor	3030908	1
9	Filter	2029826	1
10	Mains Lead	3031231	1
11	Fan Motor	3040277	1
12	Fan Motor Inlet Ring	3040283	1
13	Fan Motor Capacitor	3030841?	1
14	Relay	3036157	1
15	Rubber Foot	3088553	2
17	Condensate Pump	3160155	1
18	Condenser Coil	2029322	1
19	Evaporator Coil	2029323	1
20	Transformer	3031061	1
21	Voltage Selection Switch	3032301	1

Spare parts available online

[www.EIPLDIRECT.com](http://www.EIPLDIRECT.com)



## WARNINGS

This appliance can be used by children from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the application in a safe way and understand the hazards involved.

Children shall not play with the appliance.

Cleaning and user maintenance shall not be made by children without supervision.

If the SUPPLY CORD is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified person in order to avoid hazard.

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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.

For correct installation and operation the unit inlet and outlet must have a clearance of 0.5M from all adjacent surfaces and or structures.



Drawing	: - TPC390
Issue	: - 5
Date	: - 17/01/17



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