Drawing	: - TPC250
Issue	: - 6
Date	: - 10/12/13

CD425/440V

INDUSTRIAL DEHUMIDIFIER

INSTALLATION, OPERATION & MAINTENANCE MANUAL

CD425/440V w/Pump

PACKAGE CONTENTS

Item	Description	Quantity
1018125	Dehumidifier	1
3086144	Quick release hose coupling	1
3944110	PVC Tube – 3/8” I/D	7.8M
TPC250	Manual	1

CD425/440V No Pump

PACKAGE CONTENTS

Item	Description	Quantity
1018150	Dehumidifier	1
3086119	Jubilee clip	2
3017315	Reinforced tubing – 16mm I/D	2 X 3M
TPC250	Manual	1

UNPACKING

Carefully remove the CD425 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

The Ebac CD425 dehumidifier removes moisture from the air that circulates through it. The resulting reduction in relative humidity protects buildings and their contents from the adverse effects of excess humidity.

The CD425 dehumidifier comprises of:

a) A compressor
b) Refrigerant evaporator coils
c) Refrigerant condenser coils
d) Circulation fan
e) A drain tray for collecting and disposing of condensed moisture
f) A cabinet to house the above components

The fan draws the moist air through the cold evaporator coils which cools the air below its dew point. Moisture forms on the evaporator and is collected in the condensate tray which leads away to a permanent drain. The cooled air then passes through the hot condenser, where it is reheated using the same energy removed during the cooling phase and the additional heat generated by the compressor.
The air is, therefore, discharged from the dehumidifier at a slightly higher temperature, but a lower relative humidity, than that which it entered.
Continuous circulation of air through the dehumidifier gradually reduces the relative humidity within the area being dehumidified.
Where large amounts of moisture are required to be removed from the area, more than one dehumidifier may be required, please contact your local distributor for advice.

SPECIFICATIONS

MODEL:	CD425
HEIGHT:	1193 mm (47”)
WIDTH:	1092 mm (43”)
DEPTH:	482 mm (19”)
WEIGHT:	160 Kg (353 lbs)
AIRFLOW:	2975 m3/hr (1750 cfm)
MAXIMUM OPERATING TEMPERATURE:	35ºC (95ºF)
POWER SUPPLY:	440V, 3 ph, 60Hz
REFRIGERANT TYPE/QTY:	R407c (2.5Kg)

"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 CD425 is a self contained low temperature dehumidifier. All electrical contactors, overloads, etc are housed in an electrical box built inside the unit. The unit is quipped with a defrost valve which energised automatically to clear any ice formation on the evaporator coils. This allows the unit to operate at much lower temperatures, the control panel gives indication of the set humidity, drying and defrost status.

TEST FOR CORRECT OPERATION

The following procedure should be followed to test the unit for correct operation.

1) After unpacking connect the unit to a 460V 3ph 60 Hz – 3 wire power supply.
2) Switch fan ON and check for the correct fan rotation. (Air blows out of the top of the machine).
3) Check dehumidification process:
    a) Remove the front cover
    b) Check the actual relative humidity inside the area
    c) Set humidity control to a LOWER value than the actual relative humidity
    d) After approximately 6 minutes check the compressor is running
    e) Leave the machine to run for 15 minutes. (NOTE: ensure that the set humidity, see c above, is set very low as the compressor will switch off when the actual RH coincides with the set point)
    f) Observe the evaporator coils
        i. If the air temperature is below 20ºC an even coating of ice should cover the entire evaporator coil
        ii. If the temperature is above 20ºC droplets of condensed water should cover the entire evaporator coil
4) If the air temperature is below 20 ºC the unit will go into defrost within 60 minutes. During the defrost cycle the defrost solenoid valve is energised and a warming of the evaporator coil can be felt.

If after carrying out the above checks the unit does not appear to function correctly refer to the repairs section or your supplier.

SYSTEM INSTALLATION

POSITIONING:

Position the CD425 in the area leaving enough room at either end of the unit to allow for easy servicing. Using a spirit level ensure the level in both directions. Failure to do so may result in the drain tray overflowing and flooding of the chamber.

WIRING:

Connect a suitable 3 phase mains power supply to the MAINS T/B terminal block inside the electric box located at the control panel end of the machine.

DRAINAGE:

Connect the outlet from the drain tray (located behind the front grille and under the evaporator coils) to a permanent drain.
Please ensure that the drainage does not rise above the level of the CD425's drain tray. Failure to observe this requirement will result in internal flooding of the dehumidifier.

ROUTINE MAINTENANCE

WARNING:
ENSURE THAT THE POWER CORD TO THE MACHINE HAS BEEN DISCONNECTED BEFORE CARRYING OUT ROUTINE MAINTENACE ON ITEMS 1, 2, 3, 4, AND 5.

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, ensure the air temperature is below 20°C, switch the machine on and leave it running for approximately 1 hour. 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/sensor 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

SYMPTOM	CAUSE	REMEDY
Unit inoperative	1. No power to unit	1. Check the power supply
Little or no airflow	1. Loose fan on shaft 2. Fan motor burnt out 3. Dirty refrigeration coils 4. Loose electrical wiring	1. Tighten fan 2. Replace the fan motor 3. See *Routine Maintenance* Section 4. Check the wiring diagram to find fault and repair
Little or no water extraction	1. Insufficient air movement 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. Replace
Unit vibrates excessively	1. Loose compressor mounts 2. Damaged fan	1. Tighten the nuts on the compressor mounts 2. Replace with a new fan
Water flooding	1. Drain pipe blocked/frozen 2. Drain pipe too high	1. Clear the obstruction 2. No section of the drainage pipe

CD425
SPARE PARTS LIST

DESCRIPTION	PART NUMBER	QUANTITY
Compressor	3022144	1
Condenser Coil	3020725	1
Evaporator Coil	3020733	3
Defrost Valve	3020803	1
Reversible Filter Dryer	3020930	1
Capillary Tube	3014251	12X1400mmX0.047
R407c Freon Refrigerant	3100453	2.5kg
Drain Tube	2014315	3 meters
3/8” Copper Tube	3014203	2 meters
1/2” Copper Tube	3014204	2 meters
5/8” Copper Tube	3014205	2 meters
Cork Tape	3100223	1/2 Roll
Fan Motor	3030140	1
Axial Fan	3010119	1
Solenoid Coil	3030402	1
Humidistat	1132200	1
Momentary Switch	3030634	1
Indicator Lamp Holder	3034513	2
12V 100ma Lamp	3034522	4

Humidistat Control Knob	2017707	1
Contactor 037H0021	3030355	1
Contactor 037H0041	3030362	1
Relay	3030270	1
Overload	3032646	1
Transformer	3031129	1
Timer	1919400	1
Transformer	3031173	1
Water Pump	3160130	1

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LIMITED WARRANTY

Our products carry a one-year unconditional warranty against any defects in workmanship or material. This warranty will cover all parts and labour required to repair your Ebac product. This warranty is invalid if the unit has been abused, damaged, whether intentional or accidental, or if any modifications have been made to the unit.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IS ISSUED IN LIEU OF ALL OTHER WARRANTIES (WHETHER WRITTEN, ORAL, OR IMPLIED) INCLUDING THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. EBAC INDUSTRIAL PRODUCTS, INC. DISCLAIMS ANY LIABILITY FOR CONSEQUENTIAL DAMAGES, LOST PROFITS, OR INCIDENTAL DAMAGES FOR BREACH OF ANY WRITTEN OR IMPLIED WARRANTY WITH RESPECT TO THE FOREGOING DESCRIBED MERCHANDISE.

For Your Records: Model:_____
S/N:_____
Date Received:_____

SAVE THIS SECTION FOR YOUR RECORDS

CLIP AND RETURN THIS CARD

PLEASE NOTE

To ensure that your Ebac Dehumidifier is accorded the full coverage provided by this warranty, please complete and mail this card at your earliest convenience.

Thank You

WARRANTY REGISTRATION

MODEL _____ S/N _____ DATE RECEIVED _____

OWNER _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

COMMENTS _____

_____

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