

DD400

INDUSTRIAL DEHUMIDIFIER

OWNER'S MANUAL



UNPACKING

Carefully remove the DD400 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.

The DD400 is of the desiccant wheel type designed to dry air by passing a large volume of air, the “process” air through a slowly rotating Silica gel rotor. Silica gel is a hygroscopic material that absorbs moisture direct from the air. As the air passes through the rotor the humidity of the air is reduced, whilst the moisture content of the rotor is increased. A smaller volume of air, the reactivation air, is heated by an internal heater and passes through a portion of the rotor in the opposite direction. As this heated air passes through the rotor it will “reactivate” it by removing the moisture content from the silica gel material. The reactivation air will leave the humidifier as warm, moist air and must be vented to outside of the building.

Continuous circulation of the room air through the dehumidifier unit gradually reduces the relative humidity in the room.

The DD400 dehumidifier is a robust, compact unit designed to control the humidity in the enclosed space in which it is placed. The casing is fabricated from Stainless Steel 304 and 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. Carry handles are provide to contribute to its portability.

The unit is thermally protected and will switch off if the maximum operating temperature of 40°C is exceeded.

The dehumidifier has two separate filters. One in the “process” air inlet and one in the “reactivation” air inlet, used to clean the air entering the dehumidifier.

SPECIFICATIONS

MODEL:	DD400
HEIGHT:	420mm
WIDTH:	400mm
DEPTH:	540mm
WEIGHT:	27 Kg
DRY AIRFLOW:	370 M ³ /HR
WET AIRFLOW:	150 M ³ /HR
POWER SUPPLY:	230V, 1 ph, 50Hz
POWER	2.2 kW (max)
FINISH:	Stainless steel 305
DEHUMIDIFICATION CAPACITY (AT 27 °C AND 60% RH)	1.4 kg/h
NOISE	67dB(A)

INSTALLATION

POSITIONING:

The DD400 is designed for indoor use. Position the dehumidifier unit in the center of the room to be conditioned if at all possible.

NOTE: Both the air inlets and outlets of the dehumidifier unit must have clear space around them and not be obstructed in anyway.

DUCT CONNECTION

The wet air outlet from the dehumidifier must be exhausted to outside of the room being dried by means of a suitable duct. All duct connections to the dehumidifier have been designed for connections to standard size ducts. The duct should be as short as possible to reduce the risk of condensation of the wet air. The duct should slope downwards away from the unit to stop any condensed water from flowing back into the unit.

The dry air outlet is also provided with a means of attaching a duct. This can be used to direct the air towards more severe damp patches.

WIRING:

-WARNING- THIS APPLIANCE MUST BE EARTHED
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The DD400 is provided with a standard plug and is designed to operate from a 13 Amp supply.

IMPORTANT – The wires in the mains lead are coloured in accordance with the following code:

GREEN & YELLOW.....EARTH
BLUE.....NEUTRAL
BROWN.....LIVE

If the supply cord is damaged it must be replaced by qualified Ebac Industrial Products Ltd personnel or other similar qualified persons in order to avoid hazard.

OPERATION

The electrical controls are located on the front of the unit. They are:

- ON / OFF Switch
 - 0** Dehumidifier OFF
 - 1** Dehumidifier ON
- Humidity Switch
 - M** Dehumidifier in continuous operation
 - A** Dehumidifier operation by means of an external humidistat
- An ammeter is provided to display the current used by the unit.
- An hour counter is provided to display the total time the unit has been in operation
- A socket is provided for connection of a external humidistat

To start the dehumidifier, turn the On / Off switch to position 1.

Turn the humidity switch to position M.

After a slight delay the fans will operate – air can be felt blowing from the air outlets and the heater will come on.

The unit will operate continuously at this setting.

Note. The DD400 is controlled by an electronic circuit board and uses dual PTC (positive temperature coefficient) heater technology to provide the heat necessary to “reactivate” the rotor. To ensure safe start up, the heaters are switched on in stages – the first heater is switched on at start up and the remaining heater switched on after 10 seconds.

At switch on, the ammeter will initially show a higher current for a few seconds, prior to settling to a steady value. This is normal. After 10 seconds the ammeter will again show an increased value as the second heater is switched on. This is normal.

If an external humidistat control is fitted, turn the humidity switch to position A. Depending on the setting of the humidistat, the dehumidifier may switch off as the relative humidity in the room decreases. As the humidity increase the unit will automatically switch back on.

The Humidistat plug supplied should be wired using pins numbered 1 & 2. Pin 3 is not required. See diagram 5010307 at back of manual.

AIR MOVING SYSTEM:

The DD400 is a dual fan system with dedicated fans for the “Process” air and “Regeneration” air flows. As the air passes over the rotor, it will be heated as a result of the regeneration cycle. The air leaving the unit will be hotter than the air entering

During normal operation some parts of the dehumidifier may become hot. This is normal.

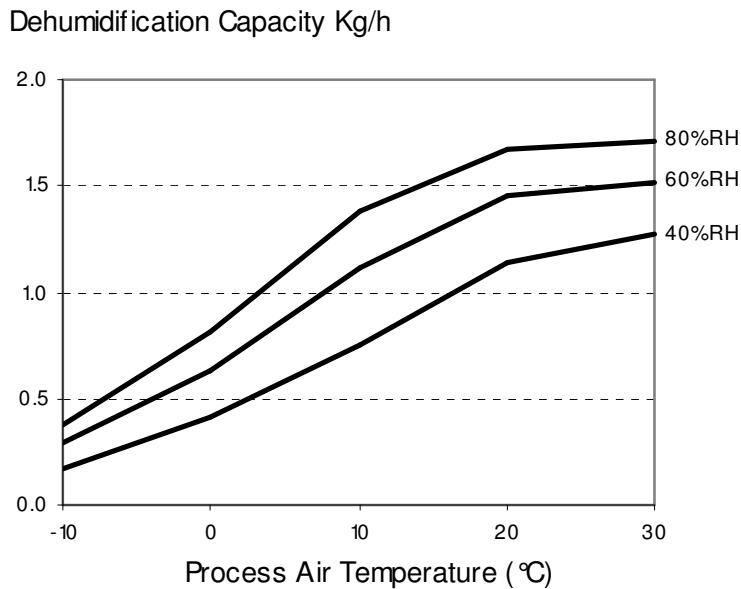
HIGH TEMPERATURE CUT OUT:

The DD400 dehumidifier has been designed to work in ambient conditions of -20°C to +40°C. Should the temperature in the room become excessive an overheat protector will operate, switching off the PTC heaters. The fans and drive motor will continue to operate. This is a manual reset device. Prior to resetting the protector, check that the dehumidifier is installed correctly and the ambient temperature does not exceed 40°C.

See repairs section for details on resetting device.

DEHUMIDIFICATION CAPACITY

Approximate capacity in Kg/h at different inlet process air temperature and relative humidity (%)



SAFETY

-WARNING-

- ◆ **DO NOT** ALLOW CHILDREN TO PLAY WITH OR AROUND THE UNIT. ENSURE THE UNIT IS INACCESSIBLE TO CHILDREN WHEN NOT ATTENDED.
- ◆ **DO NOT** USE THIS UNIT IN AN ENVIRONMENT CONTAINING FLAMMABLE FUMES
- ◆ **DO NOT** USE THIS UNIT IF THE CABINET OR POWER CORD IS DAMAGED
- ◆ **DO NOT** INSERT OBJECTS INTO ANY OF THE GRILLES ON THE MACHINE
- ◆ **DO NOT** COVER OR OBSTRUCT AIRFLOW FROM THE GRILLES
- ◆ **DO NOT** OPERATE THE UNIT WITH THE COVERS REMOVED
- ◆ **DO NOT** ATTEMPT ANY REPAIRS SHOULD THE UNIT FAIL TO OPERATE
- ◆ **DO NOT** STAND ON THE UNIT
- ◆ **DO NOT** LIFT THE UNIT WHEN SWITCHED ON
- ◆ **DO** CHECK THE PLUG ON THE EQUIPMENT MATCHES THE SUPPLY
- ◆ **DO** USE THE UNIT FOR THE PURPOSE FOR WHICH IT WAS DESIGNED
- ◆ **DO** ENSURE THE POWER CORD AND SUPPLY IS EARTHED CORRECTLY
- ◆ **DO** USE A RESIDUAL CURRENT DEVICE "RCD" WHERE POSSIBLE
- ◆ **DO** KEEP THE UNIT DRY. NEVER USE A HOSE OR PRESSURE WASHER TO CLEAN THE UNIT.

ROUTINE MAINTENANCE & REPAIR

WARNING:

ENSURE THAT THE POWER CORD TO THE MACHINE HAS BEEN DISCONNECTED BEFORE CARRYING OUT ROUTINE MAINTENANCE.

SWITCH OFF THE DEHUMIDIFIER APPROXIMATELY 15 MINUTES PRIOR TO REMOVING ANY PANELS, ALLOWING THE HEATER TO COOL DOWN

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

- We recommend that the filters are checked at least once a month. Intervals for cleaning or replacement of filters will depend on the installation
- Never operate the dehumidifier without the filters, as the rotor can be damaged by dust.

To carryout the following, it is necessary to remove the top cover panel.

This machine should be serviced by qualified Ebac Industrial Products Ltd personnel or other persons having technical competence in servicing electrical equipment following the instructions in this Service Manual.

- The rotor is maintenance free. However, should it be necessary to clean the rotor, compressed air should be used to carefully blow dirt from the rotor.
- The PTC heaters are maintenance free. However should it be necessary to clean the heaters, compressed air should be used to carefully blow dirt from the heaters.
- Check that the fans are firmly secured and that the fan rotates freely.
- Check all wiring connections.
- Check the belt tensioning at regular intervals. Adjust when needed by loosening the four bolts holding the drive wheel and rotating the drive motor until correct tension is achieved.
- The overheat protector is located inside the unit, towards the front, near the rotor. To reset this device press the red button.
- Should an electrical component fail, consult the Factory Service Center to obtain the proper replacement part.

IF ANY OF THE PRECEDING PROBLEMS OCCUR, CONTACT THE EBAC INDUSTRIAL PRODUCTS LTD SERVICE CENTER PRIOR TO CONTINUED OPERATION OF THE UNIT TO PREVENT PERMANENT DAMAGE.

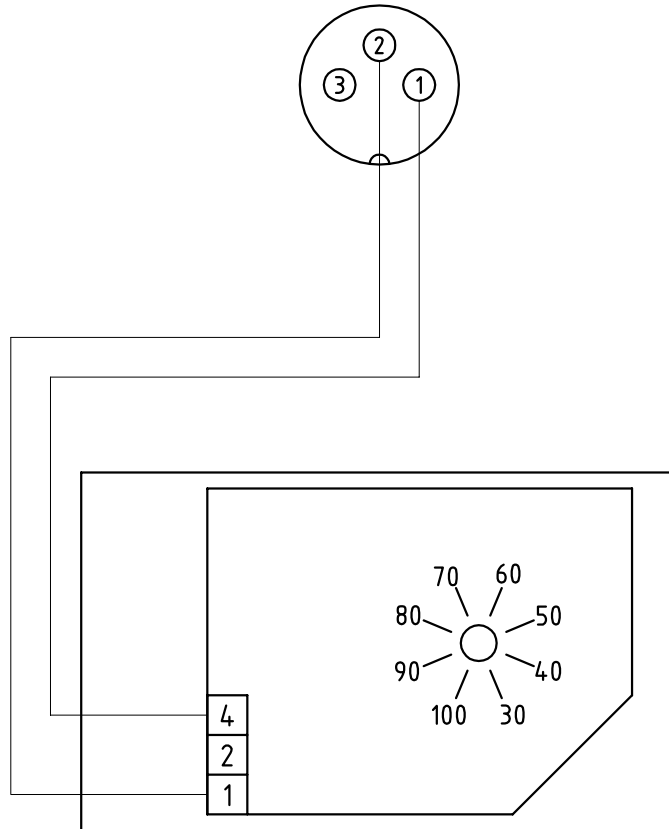
TROUBLESHOOTING

<u>SYMPTOM</u>	<u>CAUSE</u>	<u>REMEDY</u>
Little or no dehumidification capacity	Filter clogged No regeneration heat Reduced airflow No rotation of Rotor Air leakage	Clean or replace filters Check PTC / OHP Check fans / duct Check belt tension / drive motor Check sealing
Dehumidifier does not start	No power Correct switch setting Loose electrical wiring	Check fuse Check Auto / Manual switch Check wiring diagram - fault find & repair
Rotor does not rotate	Drive belt slipping Drive belt broken Rotor jammed Drive motor faulty	Check belt tension Replace drive belt Check centre shaft, rim of rotor Check supply /Replace motor
No Dry or Wet Air Airflow	Filter clogged Fan faulty Ducts blocked	Clean or replace filters Check supply / fan Check duct for obstruction
Low current displayed on ammeter	Low reactivation airflow PTC faulty	Check air path for restriction Check PTC / OHP
Noisy	Fan loose Loose fastenings	Check fans secured firmly Tighten all fastenings

SPARE PARTS LIST

<u>DESCRIPTION</u>	<u>PART NUMBER</u>
Process Air Fan Motor	3040251
Capacitor for Process Air Fan Motor	3030835
Process Inlet Filter	2050029
Regeneration Air Fan Motor	3040250
Capacitor for Regeneration Air Fan Motor	3030834
Regeneration Inlet Filter	2050030
Drive Motor	3040249
Capacitor for Drive Motor	3030832
Pulley	3050552
Pulley Belt	3050551
PTC Heater	3031625
Overheat Protector	3477026
Desiccant Wheel	3020706
PCB Controller	1619600
Mains Cable	2029217
On / Off Switch	3030557
Auto / Manual Switch	3030522
Ammeter	3180101
Hour Counter	3030778
Humidistat Socket	3033807
Humidistat Plug	3033806

ISSUE	DATE	AMENDMENTS
1	19/05/10	ORIGINAL



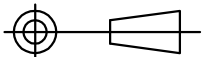
FROM	TERM.	TO	TERM.
H/STAT - 1	PLAIN	PLUG - 2	SOLDER
H/STAT - 4	PLAIN	PLUG - 1	SOLDER



LIMITED
BISHOP AUCKLAND
ENGLAND

TITLE
DESICCANT - REMOTE H/STAT WIRING

3RD ANGLE PROJECTION



DO NOT SCALE
IF IN DOUBT ASK

DIMENSIONS IN m.m.
TOLERANCES UNLESS
OTHERWISE STATED
0. ± 1
0.0 ± 0.25
0.00 ± 0.05
ANGULAR ± 0.5 DEGREE

MATERIAL
N/A

FINISH
N/A

DRAWN : W. DAGLISH

CAD SCALE : N/A

DRG.NO.
5010307

SHEET
1 OF 1

Drawing	: - TPC 346
Issue	: - 2
Date	: - 19/05/10