

# ORION

## INDUSTRIAL DEHUMIDIFIER

### USERS MANUAL



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



## SAFETY INFORMATION

### READ AND SAVE THESE INSTRUCTION

Children shall not play with the appliance.

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.

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.

If the appliance 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.

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 appliance is switched off at the mains power supply for any reason, it must be allowed to stand at rest for at least three minutes before restarting. Failure to do so may cause the appliance to blow the fuses owing to the compressor due to there being a refrigerant imbalance.

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

R290 – 3

R454c – 148

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

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 stand on the unit

Do not attempt to lift heavy units unassisted.

Do check the plug on the unit matches the supply.

Do check the supply cord and power supply are earthed correctly

Do check the voltage selection before attempting to power up the unit (This is for dual voltage units only).

Do use a residual current device "RCD" where possible



The appliance uses R454c refrigerant gas. This gas is much kinder to the environment as it is non-toxic with zero Ozone Depletion Potential (ODP). This is a flammable gas and the following warnings should be considered:

- The appliance uses a flammable refrigerant (see unit serial plate for charge quantity). It is therefore part of a sealed system and **any servicing should only be carried out by EIPL service personnel.**
- Do not pierce / burn / puncture the appliance at any point, even when disposing of. Before disposing all refrigerant should be evacuated and disposed of as required by local environmental laws.
- If there is any damage to the appliance, DO NOT USE and contact EIPL.
- The appliance must not be used in a potentially explosive atmosphere.
- The appliance must not be used in an aggressive atmosphere e.g. chemical environments.
- The appliance must not be used in a high dust environment.
- The appliance must not be used in a high solvent concentration atmosphere.
- Do not use the appliance in a room with any continuous source of ignition e.g. open flames or gas fires.
- R454c is an odourless gas.
- Anyone who does work on the refrigeration circuit must have the appropriate qualifications / certification issued by a national accredited organisation to ensure competence when handling flammable refrigerants.
- Any parts to be replaced within the appliance should only be replaced with EIPL approved parts.
- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources (for example open flames, an operating gas appliance or an operating electric heater).

## GAS DETECTION

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) must not be used.

The following leak detection methods are deemed acceptable for all refrigerant systems.

Electronic leak detectors may be used to detect refrigerant leaks. Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at 25% of the LFL of the refrigerant and must be calibrated to the refrigerant deployed.

Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe work.

## ORION

### PACKAGE CONTENTS

| Item       | Description                 | Quantity |
|------------|-----------------------------|----------|
| 11270GR-US | Dehumidifier                | 1        |
| 3086144    | Quick release hose coupling | 1        |
| 3944110    | PVC Tube – 3/8" I/D         | 7.8M     |
| TPC628     | Manual                      | 1        |

## INTRODUCTION

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

The Orion has a number of special features:

- High efficiency rotary compressor
- Efficient Air to Air heat exchanger
- Ebac's "**Reverse Cycle**" defrost system
- Integral pump out system
- Provision for permanent drainage
- Exterior epoxy powder-coated finish
- Extra long power cord
- Hours run counter

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 Orion dehumidifier is a 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 Orion dehumidifier must only be stored and transported in the vertical position. To operate, stand the unit on level ground, and connect power supply and it is ready for operation.

## SPECIFICATIONS

|                         |                                            |
|-------------------------|--------------------------------------------|
| <b>MODEL:</b>           | 11270GR-US                                 |
| <b>HEIGHT:</b>          | 44" (1120 mm)                              |
| <b>WIDTH:</b>           | 22" (560mm)                                |
| <b>DEPTH:</b>           | 21.25" (540mm)                             |
| <b>WEIGHT:</b>          | 165 lbs (75 kg)                            |
| <b>AIRFLOW:</b>         | 360 CFM (600 M3/Hr)                        |
| <b>POWER SUPPLY:</b>    | 110V / 60Hz /1 ph                          |
| <b>FINISH:</b>          | Powder-coated Epoxy                        |
| <b>OPERATING RANGE:</b> | 33°F – 105°F                               |
| <b>REFRIGERANT:</b>     | R454c (See unit rating label for quantity) |

## OPERATION

Connect the appliance to a suitable 110V grounded power supply. Connect the drainage outlet to a suitably sized hose and run the hose to a permanent drain. Once the appliance is installed turn the power supply on, then turn the on / off switch to the 'I' position and note the unit starts. Then carry out the following: -

- Check that the compressor is running
- Leave the appliance to run for approximately 15 minutes
- Observe the coils through the filter grille to confirm frost formation or weeping of the evaporator coil
  - If the air temperature is below 25°C, an even coating of frost should cover the entire evaporator coil.
  - If the air temperature is above 25°C, frost and/or droplets of condensed water should cover the entire evaporator coil.
- When the unit is operated in an ambient of less than 15°C, a defrost cycle should occur. This will be at intervals of no more than every hour and will last no more than 5 minutes. The exact time is impossible to predict as the unit is fitted with a temperature sensitive defrost control.

After using the appliance, turn it off for 5 minutes to allow the condensate on the coils to drain into the pump reservoir. Then turn the appliance back on and press the momentary purge switch for 20 to 30 seconds to evacuate the water from the pump reservoir.



## **BASIC STEPS FOR DRYING**

Ensure that all External doors and windows are closed. Where no doors or windows are fitted, temporarily screen off the openings.

### **POSITIONING**

For small areas position centrally in the area to be dried, for larger areas such as open plan buildings, offices or factories, a number of dryers may be required, in such cases they should be spaced evenly around the area. Ensure that no unit is positioned in such a way that it blows directly into another.

For private houses or flats, position the dryer on one floor at a time, starting at the lowest floor, closing all internal doors on the floor previously dried.

Continue until all floor levels have been dried.

Note when a particular damp patch is to be dried out the air outlet grille should be directed towards that area but should never be closer than 1m to the surface. At no time should the inlet or outlet grilles be covered or obstructed.

### **DRAINAGE**

Under most operating conditions water will be produced continuously and it is important that it is drained away correctly and not allowed to spill. Any spillage will evaporate and will therefore, have to be recycled through the dryer again, which in effect, only prolongs the drying period.

### **PORTABLE CONTAINERS**

Position a closed top container underneath the water discharge pipe (approximately 25 litres capacity). Place a short length of pipe one end over the discharge pipe and the other end in the container. Use a transparent container, this will enable you to check the level of water and so prevent overflowing. As the unit will be running for long periods of time, a regular check should be made on the container water level.

### **PERMANENT DRAINAGE**

Connect a flexible hose to the water drainage pipe of sufficient length so that it will reach a permanent drain. The gravity head created will allow for a gradual fall from the unit to the drain. Ensure that the hose is free of kinks and is not allowed to rise at any point above the level of the discharge point from the dehumidifier. Any air locks which may be created, should the level be raised by the hose passing over obstructions, could cause the water to “back up” the hose and spill from the drier.

## 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

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**

2. Remove the air filter and clean by either blowing compressed air through, vacuuming or washing in warm water
3. 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.**
4. To check the refrigerant charge, run the unit for 15 minutes and briefly remove the top 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. During this inspection, check visually to ensure that the pump rollers are turning.
5. Check all wiring connections.
6. To check the operation of the defrost system, switch the machine on and leave it running for approximately 42 minutes. The machine will then enter "Reverse Cycle" 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 EIP SERVICE CENTER PRIOR TO CONTINUED OPERATION OF THE UNIT TO PREVENT PERMANENT DAMAGE.

## 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. Loose fan on shaft<br>2. Fan motor burnt out<br>3. Dirty refrigeration coils / filter<br>4. Loose electrical wiring | 1. Tighten fan<br>2. Replace the fan motor<br>3. See <i>Routine Maintenance</i> Section<br>4. Check the wiring diagram to find fault and repair           |
| <b>Little or no water extraction</b>      | 1. Insufficient air flow<br>2. Compressor fault<br>3. Loss of refrigerant gas                                          | 1. Check all of the above<br>2. Contact the Factory Service Center<br>3. Contact the Factory Service Center                                               |
| <b>Little or no defrost when required</b> | 1. Faulty timer<br>2. Faulty by-pass valve                                                                             | 1. Contact the Factory Service Center<br>2. Contact the Factory Service Center                                                                            |
| <b>Unit vibrates excessively</b>          | 1. Loose compressor<br>2. Damaged fan                                                                                  | 1. Tighten the nuts on the compressor mounts<br>2. Replace fan                                                                                            |
| <b>Water flooding inside the machine</b>  | 1. Drain pipe blocked/frozen<br>2. Drain pipe too high<br>3. Crimped or blocked tubing                                 | 1. Clear the obstruction<br>2. Ensure that no section of the drain hose is above the level of the water outlet<br>3. Straighten, clear, or replace tubing |

## ORION SPARE PARTS LIST

| Description                     | Part Number |
|---------------------------------|-------------|
| Product Part Number             | 11270GR-US  |
| PCB Timer                       | 1619522     |
| Evaporator Coil                 | 2027001     |
| Condenser Coil                  | 2027002     |
| Air to Air heat exchanger       | 2027003     |
| Filter                          | 2027063     |
| Fan Duct Box                    | 2027073     |
| Drain Tray                      | 2027074     |
| Insul Tube (10mm ID)            | 3014301     |
| PVC Clear Tube (3/8" ID)        | 3014336     |
| PVC Tube (12mm ID)              | 3014338     |
| Inseal Tape                     | 3015199     |
| Reversing Valve                 | 3020833     |
| Filter Dryer                    | 3020957     |
| Solenoid Coil                   | 3030453     |
| Hour Meter                      | 3030779     |
| Mains Cable                     | 3031231     |
| Terminal Block                  | 3031460     |
| Open Grommet (20mm)             | 3032101     |
| Open Grommet (25mm)             | 3032111     |
| P-Clip (10mm)                   | 3032466     |
| Klambush                        | 3032501     |
| Coil Sensor                     | 3035142     |
| On / Off Switch                 | 3035914     |
| PTCR                            | 3036347     |
| Compressor Capacitor            | 3036358     |
| Pump Purge Switch               | 3036779     |
| Fan                             | 3040279     |
| Wheel                           | 3050116     |
| Spire Clip                      | 3080501     |
| Starlock Washer (Uncapped)      | 3082601     |
| Starlock Washer (Capped)        | 3082602     |
| Screw No.10 x 5/8"              | 3084095     |
| Jubilee Clip                    | 3086116     |
| Hose Snapper Clip               | 3086136     |
| Quick Release Coupling          | 3086144     |
| Rubber Foot                     | 3088553     |
| PCB Pin                         | 3101413     |
| Condensate Pump                 | 3160155     |
| Solid State Relay               | 3931321     |
| GFI Plug                        | 3934517     |
| M5 External Serrated Washer     | 3942926     |
| PVC Tube (3/8" ID x 7.8mt Long) | 3944110     |
| Compressor                      | 3944967     |



|         |              |
|---------|--------------|
| Drawing | : - TPC628   |
| Issue   | : - 2        |
| Date    | : - 03/07/25 |



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**UK Head Office**

Ebac Industrial Products Ltd  
St Helens Trading Estate  
Bishop Auckland  
County Durham  
DL14 9AD

Tel: +44 (0) 1388 664400  
Fax: +44 (0) 1388 662590

[www.eipl.co.uk](http://www.eipl.co.uk)  
[sales@eipl.co.uk](mailto:sales@eipl.co.uk)

**American Sales Office**

Ebac Industrial Products Inc  
700 Thimble Shoals Blvd.  
Suite 109, Newport News  
Virginia, 23606-2575  
USA

Tel: +01 757 873 6800  
Fax: +01 757 873 3632

[www.ebacusa.com](http://www.ebacusa.com)  
[sales@ebacusa.com](mailto:sales@ebacusa.com)