

# BKool16

## PORTABLE ACU

### OWNER'S MANUAL



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

## INTRODUCTION

Heat is a form of energy, cooling is means of transferring the heat from one object to another. In the case of Air conditioning, sensible heat is removed from the indoor space and replaced with cooler air, and the warm air removed is exhausted outside the space being conditioned. This process gradually reduces / maintains the inside temperature. Air Conditioning is most commonly used to achieve a more comfortable interior environment, typically for humans or animals. However, air conditioning is also used to cool rooms filled with heat-producing electronic items, such as computer server rooms. Spot Coolers allow the cool air to be directed towards specific objects or people.

An ACU consists of a motor-compressor unit, a refrigerant condenser, two air circulating fans, a refrigerated surface, a means of collecting and disposing the condensed moisture and a cabinet to house these components.

The evaporator fan draws air through the refrigerated surface cooling it and removing moisture which is collected and led away. This air is then returned to the room at a much colder temperature providing the cooling effect and with a lower relative humidity than when the air entered the unit. Continuous circulation of the room air through the ACU evaporator gradually reduces the temperature and relative humidity in the room. The condenser fan draws air over the hot condenser which keeps the refrigerated surface cold. This air stream should ideally be ducted out of the area being cooled as it will leave the unit much warmer than the air entering the unit.

A digital thermostat is included which allows for precise temperature control. A programmable display lets you set a specific desired temperature level.

The BKool16 is a rugged reliable cooling unit designed to operate effectively over a broad range of temperatures. A defrost system, controlled by a frostat, guarantees de-icing and thereby optimizing operation at low temperatures.

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

The BKool16 has a number of special features:

- Defrost system
- Large water container for moisture removed
- Provision for condensate pump drainage
- Exterior epoxy powder-coated finish
- Large durable castors for easy manoeuvrability
- Status Indicators
- Digital Thermostat Controller
- High and low pressure cut outs

## SPECIFICATIONS

<b>MODEL:</b>	102971GB-GB
<b>COOLING CAPACITY</b>	16000 BTU (@27°C / 60% RH)
<b>HEIGHT:</b>	1180mm
<b>WIDTH:</b>	500mm
<b>DEPTH:</b>	675mm
<b>WEIGHT:</b>	92 kg
<b>EVAPORATOR AIRFLOW:</b>	640 M <sup>3</sup> /Hr
<b>EVAPORATOR OUTLET DIA:</b>	2 X 100mm
<b>CONDENSER AIRFLOW:</b>	1900 M <sup>3</sup> /Hr
<b>CONDENSER OUTLET DIA:</b>	310mm
<b>SOUND LEVEL:</b>	71.5 dB(A)
<b>POWER SUPPLY:</b>	230V - 50Hz - 1 ph
<b>RUNNING CURRENT:</b>	10A
<b>OPERATING RANGE:</b>	18°C – 35°C
<b>REFRIGERANT:</b>	R407c (650g)

*"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"*

## INSTALLATION

### POSITIONING:

Position the ACU unit in the center of the room to be conditioned if at all possible. However, if a specific area needs to be cooled then place the unit and the cool air outlets over these areas.

NOTE: all air inlets and all air outlets of the ACU unit must have clear space around them and not be obstructed in anyway. For correct installation and operation the unit must have a clearance of 0.5M from all adjacent surfaces and or structures.

### DUCTING:

The evaporator air can be directed to a desired area with the flexible ducts provided with the ACU unit. The two flexible ducts are provided in a separate box within the unit packaging. These ducts **MUST BE FITTED** to the ACU unit **BEFORE SWITCHING THE UNIT ON**. To fit the ducts, remove the 8 off fixings located on the top sloped face around the outlet cut outs. Place the duct into position on the sloped face and then fix in place with the removed fixings.

Ideally the condenser air outlet should be ducted out of the room / area being cooled.

### POWER SUPPLY:

Plug the unit into a suitable supply and the unit is ready for operation

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.

### DRAINAGE:

The ACU unit has a removable water collection container. This must be placed into the unit before it will operate.

## OPERATION

The following procedures should be followed to test the BKool16 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 13 Amp electrical outlet.
2. Setting the Digital Thermostat

**The Digital thermostat is factory preset to give the optimum level of control. Only adjustment of the desired set point is required.**

During normal operation, the display shows the current temperature within the space being conditioned.

The required temperature level can be set as follows:

- Press the “S” button once to access the set point
- Press the ▲ or ▼ button to change the display to the desired temperature level
- Press the “S” button again to save the set point – The control returns to displaying the current temperature

3. Check cooling process as follows:
  - A. Place unit on a level surface.
  - B. Start up unit by turning the ON/OFF switch to ON. Note the power light illuminates
  - C. Check the digital thermostat is set to required temperature setting (below room temperature)
  - D. Check that the compressor is running. This will happen after an in-built delay of 6 minutes
  - E. Leave the machine running for 15 minutes.
  - F. Check cooling ducts are discharging cool air. After a period of time the digital thermostat temperature display should start to decrease until set point is reached at which point the compressor and condenser fan will stop but the evaporator fan will continue.
  - G. If frost is appearing on the evaporator coil then the unit will periodically go into defrost. When in defrost the compressor and condenser fan will stop, the evaporator fan will continue and the defrost light will illuminate. Once defrost is achieved the unit will 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 Centre.

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

## **DRAINAGE**

The ACU unit has a removable water collection container. This must be placed into the unit before it will operate. When the bucket fills it will automatically turn the unit off before overflowing. This container will need emptying on a regular basis so the ACU unit can provide continuous cooling. Access to the container is gained via the small service door and quick release catches, located on the side of the unit.

If the bucket is missing or full, as well as the unit not operating, it will illuminate the bucket fault light.

A condensate pump can be fitted to provide continuous drainage. Please contact EIPL or your distributor for further information.

## **PRESSURE STATS**

The ACU unit is fitted with a low pressure stat and a high pressure stat. These pressure stats are connected to the refrigeration system are safety devices designed to protect the refrigeration components. If one of the pressure stats are activated then the pressure fault indicator light will illuminate and the following should be carried out.

- A. Switch unit off and leave for a minimum of 5 minutes
- B. Check the air inlets are not blocked.
- C. Ensure that the unit is operating within specified parameters of 18°C – 35°C
- D. Switch unit back on, if it restarts then the low pressure stat tripped and has re-set.
- E. If the unit does not restart then switch unit off, disconnect from power supply and manually reset the high pressure switch located within the unit. Restart the unit and check for normal operation.
- F. If the unit still does not start or has started and cuts out on pressure switches then the unit should be turned off and disconnected from the power supply. Then contact either the manufacturer, distributor or qualified personnel.

## Warnings.

- 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 five minutes before restarting.

**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 either the manufacturer, distributor or qualified personnel.**

## 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 ACU unit, 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 fans are rotating 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. 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.

**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 charging stubs located near pressure switches.

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 / filter 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 defrost when required</b>	1. Faulty froststat 2. No airflow	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 above the level of the water outlet 3. Straighten, clear, or replace tubing

## BKool16 SPARE PARTS LIST

<u>NUMBER</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>	<u>QUANTITY</u>
1	Timer		1
2	Evaporator Coil	2097123	1
3	Condenser Coil	2097124	1
4	Evaporator Fan	3040280	1
5	Condenser Fan	3040329	1
6	Compressor	3944945	1
7	Capillary	3014249	2 x 4ft
8	Filter Dryer	3020957	1
9	Low pressure stat	3021155	1
10	High pressure stat	3021153	1
11	Frostat	3031516	1
12	Relay	3030270	1
13	Temperature Controller	3031522	1
14	Temperature sensor	3033379	1
15	Micro switch	3033044	2
16	On/Off switch	3035914	1
17	Fixed castor	3050206	2
18	Swivel castor with brake	3050208	2
19	Bucket spring	3090752	1
20	Condensate container	3100704	1
21	Condensate container cap	3100705	1
22	Flexible outlet duct	3110461	2
23	Contactors	3930733	1
24	Red LED	3931717	1
25	Green LED	3931718	1
26	Orange LED	3931720	1
27	Male plug	3934540	1
28	Female socket	3934541	1
29	Mains Cable	2029217	1
30	Quick release catch	3088539	4

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.

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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	: - TPC484
Issue	: - 1
Date	: - 14/06/18



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