



OPA 296RKTFH-P (Inverter)

Packaged Reverse Cycle R410A Air Cooled Air Conditioner

Installation & Maintenance

GENERAL

This OPA 296RKTFH-P unit must be installed in accordance with all national and local safety codes.

REFRIGERATION SYSTEM

General

The refrigeration system has been charged with HFC-410A (R410A) refrigerant; refer wiring diagram specification table for amount. Service valves are provided to measure discharge and suction operating pressures.

Compressor

The compressor is inverter type. The compressor lubricant is polyvinylether oil (PVE). Note, this oil absorbs moisture quickly if exposed to open air.

ECONOMISER (Option)

If the outdoor air heat content or temperature is below that of the return air, the fresh air damper opens and the return air damper closes to provide the first stage of cooling. The compressor will then operate to provide more cooling if required.

INSTALLATION

Unpacking

Units configured with Downward supply air and mounting rails, have their spigots shipped loose inside the return air cavity.

Positioning

Refer to dimension diagrams for minimum clearances. If multiple units are to be placed side-by-side then allow at least 2 m between coil faces.

Mounting

The unit should be fastened to a firm flat horizontal base using the holes supplied in the box mounting channel.

When the unit is being installed on a roof it is recommended that the unit is installed on a substantial structure with vibration isolating springs beneath the unit. These springs are not supplied with the unit.

Flexible duct connections are recommended between the supply and return ducts, and the corresponding spigots of the unit.

Condensate Drain

The condensate drain should be 'U' trapped outside the unit. The trap should have a Downward height of at least 100 mm. The drain should have a slope of at least 1 in 50 and must not be piped to a level above the unit drain pipe (see figure 3).

Electrical Requirements

Electrical work must be done by a qualified electrician. The outdoor unit must be wired directly from a distribution board by means of a circuit breaker or H.R.C. fuse, and a mains isolator provided - preferably close to the unit.

Note: DO NOT USE REWIRABLE FUSES.

The OPA 296 is provided with a 24V AC control circuit for a thermostat, on/off switch and/or time clock.

This unit is a variable capacity unit therefore there are restrictions on the model of thermostat that can be used to control it. Temperzone's TZT-100 thermostat is suitable. Alternatively an external BMS or other type of controller which can compute the desired compressor capacity and convert that into a 0 – 10V DC control signal, can be used. It must also provide 24V ON/OFF signals to activate the Comp 24V / Heat 24V and Indoor Fan speed Low / Med / High 24V inputs.

INDOOR FAN SPEED

The fan speed is controlled by the UC6 Controller. It receives fan speed requests either from the TZT-100 thermostat or from the LOW IN/MED IN/HIGH IN terminals.

If an external controller is used to control the Compressor / Heat signal / Fan Low / Med / Hi selection, it should take its input from the 'HOT 24V' terminal and return it to the input(s) it is activating.

CHECK TESTS

1. Check that the shipping block beneath the compressor has been removed and that the compressor is secure on its mounts.
2. Check by hand that all fan motors can turn freely.
3. Check that the air filters have been correctly installed, if fitted.
4. Check air diffuser dampers are open if appropriate.
5. Check that the thermostat, or external 24V controller, is correctly wired to the unit and is set at the desired temperature.
6. Check the tightness of all electrical connections and sign the check label.
7. Leave the thermostat, or external 24V controller, in the off position and close the mains isolating switch. (A four hour delay period is required to allow the crankcase heater to drive any liquid refrigerant out of the compressor oil.)
8. Check the supply voltage between each phase and neutral.
9. Turn on the thermostat, or external 24V controller. Set it to 'FAN only' operation and select HIGH speed. When the fan

has reached full speed adjust the 'POT' (see wiring diagram) to deliver the design air flow. Do not set the fan speed unnecessarily high.

10. Select Medium, then Low fan speed.

Check that the Indoor fan slows down as the selected speed is reduced. Turn fan off.

START-UP PROCEDURE

After the four hour delay for the crankcase heater has expired, use the supplied Commissioning Sheet (Form NS 217) to record results when completing the following 'Start-up' procedure. Ideally a UC6 Service Interface and associated communication cable (temperzone part no.s 201-000-379 and 201-000-378) should be used to read, pressures, superheat and its set-point, compressor amps etc.

1. Select a sensible Fan speed (or Auto Fan mode), operating cycle (cool or heat), and room temperature set point, depending on the time of year, such that the compressor will start and run at a high capacity.
2. Turn ON the thermostat / External controller. Wait for the compressor to start and reach a stable speed. Measure the current for each phase feeding into the compressor's Power+ Speed Drive. Compare against the compressor amps specified on the unit's wiring diagram. Note the compressor overload is built into the Power+ Speed Drive. So no user adjustable setting is available.
3. Measure the current draw of each fan motor. Check all readings against the specified values in the wiring diagram.
4. If a UC6 Service Interface is available, operating pressures and status can be read from its various display screens. If a UC6 Service Interface is not available, fit gauges and measure the suction and discharge pressures of both refrigeration circuits.
5. Check that the outdoor air fan motors are running smoothly and drawing less than the full load amps specified.
6. Test the operation of the reversing valve by running the unit in both the heating and cooling mode.
7. Check the supply air flow at each outlet.
8. Touch up any outdoor unit paintwork damage to prevent corrosion.

SETTING SUPPLY AIR FLOW

Consult OPA 296 Technical Data pamphlet for details of airflow/duct static pressure, if required.

If the indoor air returning to the unit is regularly expected to be above 50%RH, then the coil face velocity should be limited

to be 2.5 m/s or less (refer Air Handling graph in Technical Data pamphlet).

High humidity levels can occur in tropical or subtropical conditions, and/or when heavily moisture laden fresh air is introduced. Use the 'POT' to select a High Fan speed upper limit (as detailed in step 9 of the 'Check Tests' section), that avoids water carry-over problems.

UNIT CONTROLLER (UC6)

The Unit Controller provides system protection functions such as coil frost protection, de-icing, high head pressure and low suction pressure cut-out. It also protects against rapid cycling of the compressor and loss of refrigerant. The UC regulates the superheat of the refrigeration system by controlling the position of an Electronic Expansion Valve (EEV). Various methods of head pressure control (or limiting) are employed in temperzone units including in this particular unit, variation of compressor speed. The particular method used varies from model to model, but is handled by the Unit Controller. In combination, these features deliver optimised performance across a wide operating temperature range.

Refer to UC6 Controller label on the unit for operation & fault diagnostics information. Many operating status conditions can be determined, without gauges, simply by using a *UC6 Service Interface* graphical display available from **temperzone**.

MAINTENANCE

Monthly

1. Check air filters, if fitted, and vacuum or wash clean as necessary.
2. Check condensate drain for free drainage.
3. Check compressor compartment for oil stains indicating refrigerant leaks.

Six Monthly

1. Check the tightness of electrical connections.
2. Check the tightness of fans and motor mountings.
3. Check suction and discharge operating pressures. (Using a *UC6 Service Interface* avoids fitting and removing gauges with consequential refrigerant loss.)
4. Replace indoor air filters (if fitted).
5. Check condensate drain for free drainage.

Yearly

1. Check all refrigerant piping for chafing and vibration.
2. Check the operation of electric heaters, if fitted.
3. Check air supply at all diffusers.
4. Check for excessive noise and vibration and correct as necessary.
5. Check for insulation and duct damage and repair as necessary.
6. Remove lint and dust accumulation from outdoor coil fins.
7. Touch up any paintwork damage to prevent corrosion.

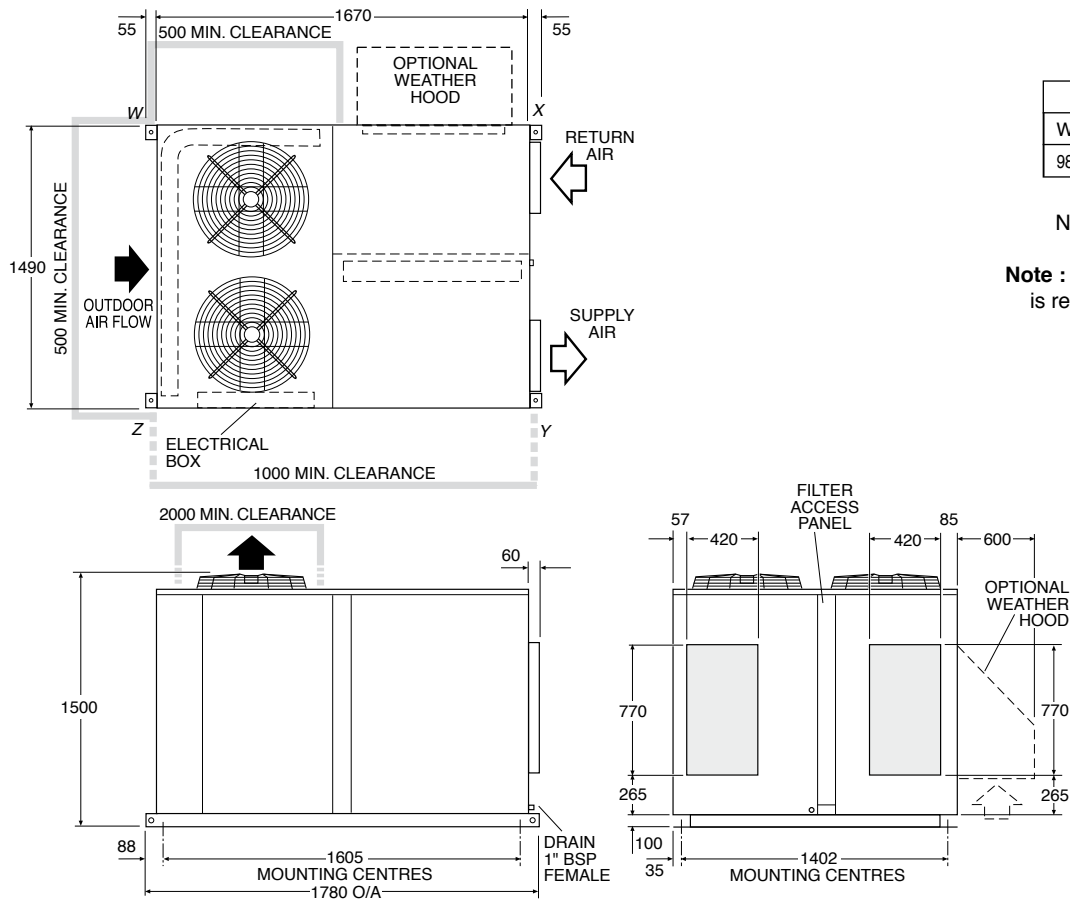
NOTE

The manufacturer reserves the right to make changes in specifications at any time without notice or obligation. Certified data is available on request.

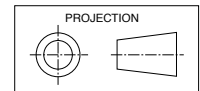
This pamphlet replaces the previous issue no. 3889 dated 06/16. Spigot positioning dimensions.

DIMENSIONS (mm)

Fig. 1 OPA 296RKTFH-P – Horizontal Supply & Return Air



OPA 296RKTFH-P



Not to Scale

POINT LOADS (kg)			
W	X	Y	Z
98	113	113	166

Net Weight 490 kg

Note : A 2 m clearance is required above the exhaust air fans

Fig. 3 Condensate Drain

