

HWP 291RKTF (Inverter c/w UC6 Controller)

Ducted Water Cooled R410A Packaged Air Conditioner

Installation & Maintenance

GENERAL

- HWP*~~RKT~~** - Reverse cycle version
HWP - A general designation which applies to all versions

These HWP units must be installed in accordance with all national and local safety codes.

OPTIONS

The following items are available as optional extras:

1. TZT-100 Room temperature controller.
2. Filters – set of 3, rated EU4.
3. Condensate Lift-Pump Kit.
4. UC6 Service Interface.

AIR FILTRATION

As air filtration requirements vary, filters are not supplied with the unit. Filters should ideally be installed on the return air side of the unit, no closer than 500 mm from the back of the unit and easily accessible for cleaning.

To maximise the efficiency of air flow, the return air filter should be twice the area of the HWP unit's return air spigot/s. If efficiency is less of a concern filters are available for the return air spigot. The filters may be accessed from either side of this spigot.

INSTALLATION

Positioning & Mounting

HWP units are designed to be used with simple, short duct layouts. Units should be located as close to the space to be air conditioned as acoustic criteria allows; refer to Fig.4 for application considerations.

When determining the position of the air conditioner, allow adequate space around the unit to facilitate future servicing and maintenance. Ensure there is enough working space in front of the electrical access panel. Allow adequate clearance for the filters (optional) to be withdrawn.

Mount the unit using the spring mount system supplied (Fig.2). This system minimises transfer of vibration into the building structure.

If a more rigid installation can be tolerated, then suspend the unit from six threaded rods using flat washers (supplied) and locknuts (not supplied), as shown in Fig. 3.

Mount the unit level as it comes with a sloping drain tray. This tray is reversible. If reversing and using a condensate lift-pump, it will be necessary to move the pump mounting bracket from the non-compressor end of the unit to the other; remove sump cover to allow access.

The unit must be mounted with sufficient height for the condensate drain to be 'U' trapped outside the unit (see below). Alternatively fit a condensate lift-pump.

The drain line must not be piped to a level above the drain tray.

Condensate Drain

The drain line must be maintained at least 28 mm ID along its full length. A vent pipe is recommended for drain pipes longer than 4 m. Check drain by pouring water into the drain tray and ensuring that it clears. Failure to adhere to these instructions could cause flooding.

Fig. 1 Dimensions (mm)

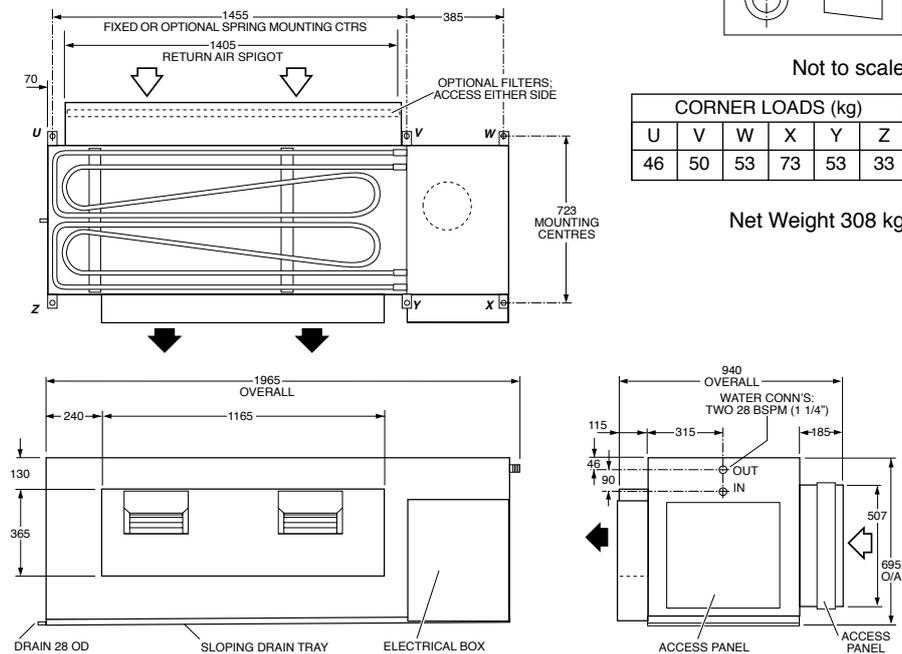


Fig. 2 Spring Mounting

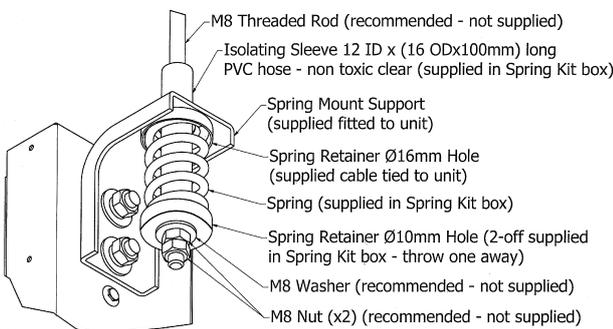
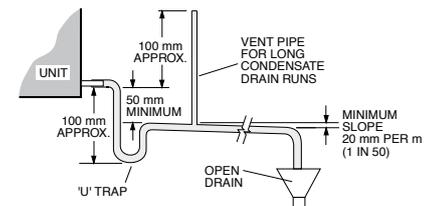
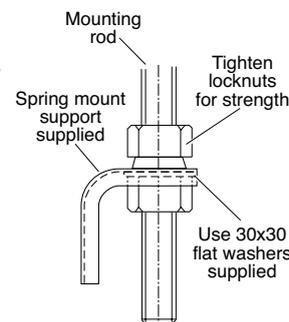


Fig. 3 Solid Mounting



Water Supply & Return

The HWP unit's IN and OUT water connections are male pipe threaded (refer Fig. 1). The HWP unit alone, excluding hoses, will withstand 4480 kPa (650 psi).

Poor quality water supply must be pre-filtered and it is essential that adequate water treatment is maintained, particularly where open cooling towers are used.

Note: It is required that the water supply system be fitted with a water flow switch and water pump safety interlock. These items prevent the HWP units from going into fail safe lockout status due to a loss of water flow. Failure to install the above items would require the resetting of all HWP units in the system - either by breaking the power supply to each unit or breaking the thermostat control circuit.

HWP*R units require a minimum water supply temperature of 17°C.

Circuit Balancing Valve

It is recommended that a circuit balancing valve be fitted to maintain water flow at a constant rate. The minimum water flow rates is 1.1 litres per second.

Electrical

Electrical work must be done by a qualified electrician. The 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 HWP 291RKTF 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 TZZT-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.

Air / Water Flow

Refer to HWP 291 Data Sheet pamphlet (available at www.temperzone.biz) for detailed information on air handling performance and water flow rates.

Fan Speed

The fan speed is controlled by the UC6 Controller. It receives fan speed requests either from the TZZT-100 thermostat or from the LOW IN/MED IN/HIGH IN 24V terminals.

If an external controller is used to control the Compressor / Heat signal / Fan Low / Med / Hi selection, the poles of the external controller relays should be fed from the 'HOT 24V' terminal and return each signal it to the HWP 291 input(s) it is activating.

Unit Protection

Unit protection is incorporated in the UC6 Controller board. A high pressure lockout protects the unit in the event of either water flow failure in cooling mode, fan failure in heating mode, or a loss of refrigerant. Units include an anti-rapid cycle function, and capacity limitation for compressor protection.

HWP*R units also protect against icing up of the water within the unit's condenser on heating mode. A pump/ flow verification input "FLOW SW IN" protects individual units from a loss of water flow.

A non-specific fault output signal is available for remote fault indication to building management systems.

Refer to UC6 Controller label on the unit for operation & fault diagnostics information, or visit www.temperzone.biz.

Note: Lockout protection can be reset by switching unit's power supply off and on. Lockout protection will also reset when the thermostat switches, or is switched to the dead zone.

Optional TZZT-100 & Remote Air Temperature Sensor

Separate installation instructions are supplied with the TZZT-100 room temperature controller. The air temperature sensor is by default located in the TZZT-100 Wall plaque. An optional remote air temperature sensor is available so that the measurement of the room temperature can be taken away from the wall plaque, eg. elsewhere in the room or in the return air duct.

Ensure the remote sensor wire is run separately and away from main power supply wires, including the interconnecting cable.

Water Circulating Pump & Flow Verification Option

In order to promote efficiency and avoid running the water circulation pump unnecessarily, each time the compressor is asked to start, after activation of the circulation pump control (CPC relay), the UC6 waits for the "FLOW SW IN" to "0V COMMON" circuit to be closed by the external dry contact Water Flow Switch. It will then start the compressor (refer wiring diagram). The UC6 also de-activates the pump when the compressor stops, after a run-on period.

Water Regulating Valve Control Option

A 0-10V signal is available on terminal "0-10V OUT" for the control of a water flow control valve (optional); refer WVC on wiring diagram. When used, the valve is closed (0V signal) when the compressor is off. When the unit is cooling the signal will control the valve to obtain an optimum condensing temperature. When the unit is heating (reverse cycle units) the valve is directed fully open (10V signal).

UC6 Controller

For detailed information on functions, operation, options and additional features of the UC6 Controller refer to www.temperzone.biz.

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 the *UC6 Service Interface* graphical display (optional extra).

COMMISSIONING

1. Check that the thermostat (not supplied) is correctly wired and set at the desired temperature.
2. Check that the air filter (if fitted) is clean.
3. Check that the fans run freely without vibration.
4. Check condensate drain and safety drain tray for free drainage.

MAINTENANCE

Quarterly

1. Check air filters and vacuum or wash clean as necessary.
2. Check condensate drain for free drainage.
3. Check compressor compartment for oil stains indicating refrigerant leaks.
4. Check quality of water supply and cleanliness of any water filters.

Six Monthly

Check tightness of electrical connections.

Yearly

1. Remove lint and dust accumulation from heat exchange air coil. (Note: failure to do this may affect efficiency).
2. Replace air filter if damaged to maintain adequate air flow and efficiency.

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. 4001 dated 04/14.
Wiring revision B.

Fig. 4 Application Considerations

Recommendations for Noise Isolation:

1. Avoid installing units, with non-ducted return air, directly above spaces where noise is critical.
2. Use flexible connections between unit and rigid ducting.
3. Use generously sized acoustically lined ducts.
4. If generous duct size is not possible, use turning vanes on bends to reduce air turbulence (regenerated noise).
5. Use 90° bends in ducting to significantly assist in noise reduction.

