

# HWP SERIES – DUCTED WATER COOLED PACKAGED AIR CONDITIONERS

## GENERAL

The **temperzone** HWP Series represents a range of ducted, water cooled, packaged air conditioners designed to provide year round comfort to room occupiers.

The HWP units are ideal for multi-unit installations such as high-rise office or hotel buildings, where the flexibility of individual zone control is required.

Compact and reliable, these units can be installed above ceilings, or in other concealed spaces, saving valuable floor space and providing conditioned air direct to necessary locations.

HWP Series units are designed to be used with simple duct layouts. To take maximum advantage of this feature, units should be located as close to the space to be air conditioned as acoustic criteria allows. Multiple small units, utilizing minimal duct lengths, prove more economical than a single large central ducted unit.

Designed also to suit different climates, the HWP units are available in two versions:

1. Cooling Only, or
  2. Reverse Cycle (Heat Pump).
- Each version has a number of different options, including the addition of electric heaters.

In office buildings, an HWP unit system can provide the ideal off-peak system for occupied areas when the main system is not running, e.g. night time, weekends, holidays.

HWP unit systems can be designed to provide owner occupiers with individual control, thus avoiding large central plant room areas, e.g. in apartment buildings.

Multiple HWP units are typically part of an overall hydronic system that incorporates some form of heat rejection equipment – usually a cooling tower or dry air cooler (radiator). Complementing the HWP Series is the **temperzone** ACW Series radiators – a range of closed circuit water coolers which serve as the central plant for rejecting heat collected by the HWP units. Refer to your nearest **temperzone** representative for further information on the ACW Series.

## FEATURES

### Air Coil

Die formed plate type aluminium fins mechanically bonded to high efficiency inner grooved copper tubes.

### Water Coil

Copper tube in tube type with refrigerant flow in the annular space and water counter flow in the inside tube. Tested to a maximum water pressure of 2760 kPa (400 psi).

## Fans

Forward curved double inlet fans in involute scrolls and fitted directly to a resiliently mounted motor. Speed tapplings allow airflow selection to match external duct pressure.

## Construction

Galvanised steel construction, closed cell foam lined compressor and fan compartments, with an insulated and powder coated drain tray for complete moisture protection. The drain tray is easily removed for inspection and cleaning, and is reversible to facilitate left or right drain connection.

The preferred drain connection is at the opposite end to the compressor; this is the only position when using the optional condensate lift-pump.

## Air Filter

### HWP 33–95

Filters are fitted as standard. The filter is a washable acrylic media in a plastic frame and rated EU2. Filter access is via either end of the unit, or may be lifted out and down.

### HWP 78–440

An optional filter integrated return air spigot is available on models HWP 78–235. Filters are also available on the larger models. Care should be taken, when locating each unit, that enough space is provided to enable the one-piece filter to be withdrawn to its full length.

## Refrigerant

Each unit is factory charged with the correct weight of refrigerant HCFC-22.

## Compressor

These units use hermetically sealed high efficiency compressors. Models HWP 33 – 49 have rotary compressors, HWP 78 and 95 have reciprocating compressors, while models HWP 120 – 440 have scroll compressors.

## Insulation

HWP units are well insulated to minimise condensation and attenuate noise.

## Unit Protection

Units are fitted with a high and low pressure lockout protection. These protect 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 a 6 min. anti rapid cycle timer for compressor on/off protection. HWP\*R units also have a low refrigerant temp. safety thermostat to protect against icing up of the water within the unit's condenser on heating mode and a pump flow verification

relay to protect individual units from a loss of water flow.

Convenient lockout contactor resetting is simply achieved by turning the power to the unit off and then on again, avoiding the need to gain access to each unit if the cause is failure of central water supply. Lockout protection will also reset when the thermostat switches, or is switched to the dead zone.

Each compressor has internal overload protection. The HWP\*R version has a low water temperature limit switch and a reverse cycle valve.

## Electric Heating (Factory Fitted Option)

Electric element/s have spirally wound stainless steel fins to give increased area and low surface temperature. They are totally enclosed within the unit and are supplied with safety cutouts required to meet AS/NZS 3350.2.40 1997. An optional fan run-on timer for rapid heat dissipation is available.

## Handing

The standard unit is right handed, i.e. when facing the discharge side of the unit, the water connections are on the right hand side of the unit. A left handed version is available for the HWP 49 and 78 models only.

## ACCESSORIES

### Flexible Hoses

Two optional 600 mm long high pressure hoses are available for water connections. The hoses have female pipe threaded nut fittings at both ends. Maximum water pressure for each hose is 1720 kPa (250 psi).

### Spring Mounting Kit

The optional HWP Series Spring Mounting System has been designed to minimise the transfer of vibration from the HWP unit into the building structure. Recommended for all installations.

### Condensate Lift-Pump

The HWP Series Condensate Lift-Pump has been designed to remove condensate from the unit in tight installations where a well sloped drain line (minimum 1 in 50 gradient) is not immediately feasible.

## PERFORMANCE DATA

Refer to the following table for an overview of the HWP product range specifications. A detailed Data Sheet for each unit is available on request from your local **temperzone** representative.

## APPLICATION CONSIDERATIONS

### Acoustics

The HWP 95 – 440 models are designed for high static pressure installations and require greater attention to acoustic criteria (refer below).

### Mounting

It is recommended that HWP units be mounted using the spring mounting system, supplied as an optional extra. This system minimises transfer of vibration into the building structure.

### Positioning

When determining installation location consideration should be given to each unit to facilitate future servicing and maintenance, e.g. room for removal of filter.

### Condensate Drain

The condensate drain should have a slope of at least 1 in 50 and must not be piped to a level above the unit drain tray.

Condensate drain traps are required on the larger models, i.e. HWP 95–440.

An optional condensate lift-pump is available to remove condensate from the unit in tight installations where a well sloped drain line is not immediately feasible.

### Air Filters

Ideally, air filters should be located in the ceiling return air grille/s and not on the unit, thereby reducing resistance and improving access. The total filter area should be twice the cross sectional area of the HWP return air spigot.

### Circuit Balancing

It is recommended that a circuit balancing valve be fitted to both HWP\*C and HWP\*R versions to maintain water flow at a constant rate. The nominal (minimum) water flow rates are given in the specifications table.

### Water Regulating Valve (HWP\*C versions only)

A head pressure controlled water regulating valve may be used instead of a circuit balancing valve – however a Schraeder tee joint adaptor (available from **temperzone**) is required to accommodate both the valve and the HWP unit's HP switch.

### Water Supply & Return

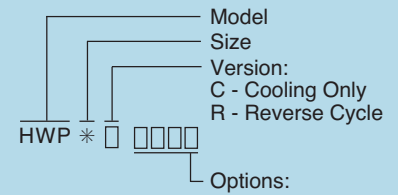
Each HWP unit alone (excluding hoses) will withstand a maximum water pressure of 2760 kPa (400 psi).

Poor quality water supply must be pre-filtered. It is essential to maintain adequate water treatment, particularly where open cooling towers are used.

**Note:** The water supply system must be fitted with a water flow switch and water pump safety interlock. These items prevent HWP units in the same water circuit 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 each HWP unit in the system - either by breaking the power supply to each unit or by breaking the thermostat control circuit.

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

## HWP Product Codes



### Factory Fitted

- E - Electric heater:  
(Complete with safety cut-out thermostat)  
Refer spec. table for capacity.
- J - Fan run-on timer (for heat dissipation)
- LH - Left handed version
- G - Condensate Lift Pump.

### Field Fitted

1. Spring mounting kit.
2. Condensate lift-pump kit.

**Note:** Please specify on your order the model, size, version and any of the options required using the above codes. Use of substitutes for factory options will invalidate the warranty.

### Examples:

HWP 33 R EJ  
HWP 78 C LH  
HWP 175 C G

*Cover Photo: Ascott Metropolis, Auckland, New Zealand.*

The manufacturer operates a quality management system that conforms to AS/NZS ISO 9001:2000.

## Recommendations for Noise Isolation

- particularly for high static (HWP 95–440) installations:

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.

