Energy Efficient Design · Energy Efficient Design ·

WATER COOLED

Water Cooled Packaged Units

AIRAH 2016 AWARDS

AIRAH AWARDS 2016 FINALIST

Product of the year category

temperzone

climate innovations

One Of The Most Energy-Efficient On The Market

Horizontal Wall Cooled Package (HWP)

3.7kW - 42.2kW 3.5kW - 44.5kW

p. 6

Vertical Water Cooled Package (CWP)

6.63kW - 98.6kW 6.27kW - 101.6kW

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Heating Capacity

Cooling Capacity

Over 65 Years of Industry Expertise

We're dedicated to pioneering innovative new technologies which make installation a breeze and provide perfect comfort all year round.

The sky's the limit with Temperzone water-cooled systems

When buildings head skyward, only Temperzone's water-cooled air conditioning system have what it takes to meet your climate control challenges.

A key fixture of many CBD high-rise developments throughout Oceania and Asia, our innovative water-cooled units are more reliable, economical, flexible, and environmentally friendly than most air-cooled alternatives. While other systems struggle to deliver as the floors stack up, our technology has been engineered to deliver optimum performance in multi story buildings particularly those exceeding 15-storeys.

Why water-cooled units lead the way up high

Temperzone's water-cooled technology combines the benefits of a water-cooled condenser with an air-cooled evaporator, delivering a level of performance that air-cooled units can't.

Available in capacities from 3.5kW to 101.6kW, they're also designed to run on individual power sources, eliminating the need to install expensive central plants. And because they're designed to fit into virtually any internal space or cavity, they're ideal for high-rise buildings that prohibit the use of balcony units.

Temperzone water-cooled systems can play a central role in developing a sustainable energy strategy or energy upgrade for any building.

HWP ECO Range Features

HWP-Y Series

HWP-Y Series R410A

High Efficiency EC Fan
Can be controlled either as selected speeds or by 0-10VDC

Thermoshell
Lower pressure drops. Water loop Anti-Fouling design with higher performance

Compact Design
Built to fit most applications

ThermoShell® technology

Wide ESP
With EC fan technology, air balancing is simple

External Control
Can be operated through relays. Simple terminals for compressor control On/Off and modulation, fan speed and cycle modes

Local Key Pad
Can operate with selected Temperzone local controllers

BMS
Can be controlled through RS485 Modbus. This also provides a wealth of data

Electronic Expansion Valve
The HWP 142 ~ 275 have electronic expansion valves for greater control and efficiency

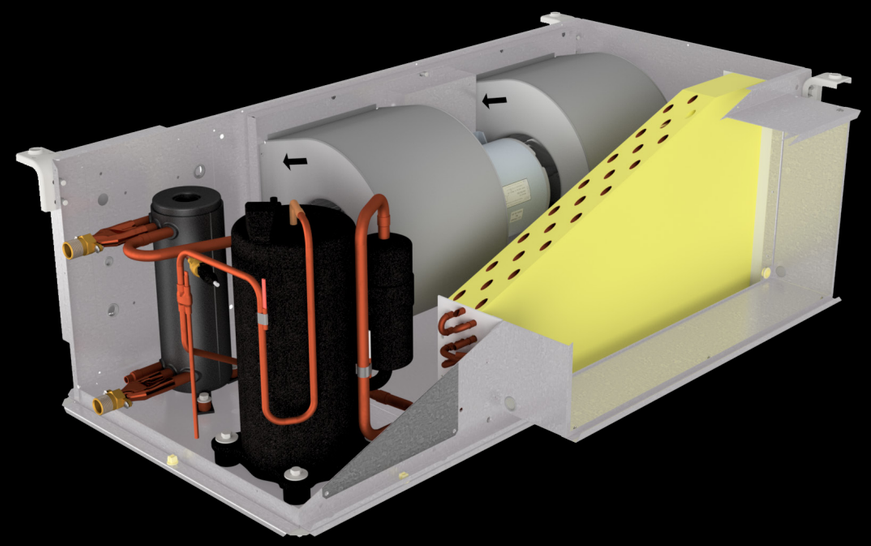
Wide Range Water Temperature*
Water temperatures from -5°C to +50°C

* Conditions apply

Cooling Only
All HWP units are available made to order as cooling only

Reverse Cycle
All HWP units are available as reverse cycle for projects that require heating from the water loop

Cooling with Electric Heating
All HWP units are available as cooling only with additional electric heaters. Heaters have double high temperature safeties



Simultaneous Cooling and Heating

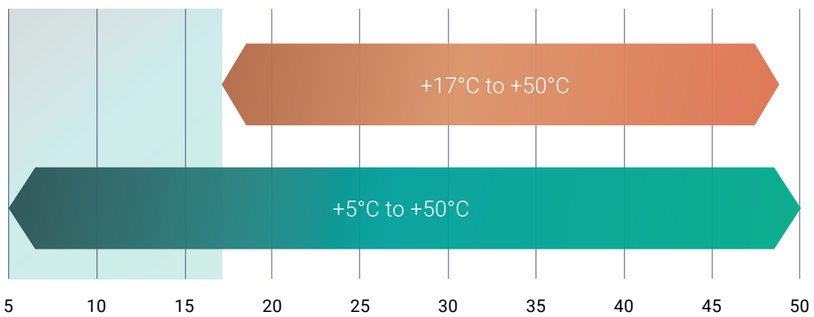
Simultaneous same-floor cooling and heating via a single water piping system

Extended Cooling & Heating Functions

The lower end of cooling and heating functions have been extended to enable a water temperature operating range to 5°C, creating a wider spectrum of potential applications.

Previous HWP

New Gen HWP



EWT range in cooling at nominal water flow (°C)

* Min. 5°C with water regulating valve, Min. 15°C without water regulating valve.

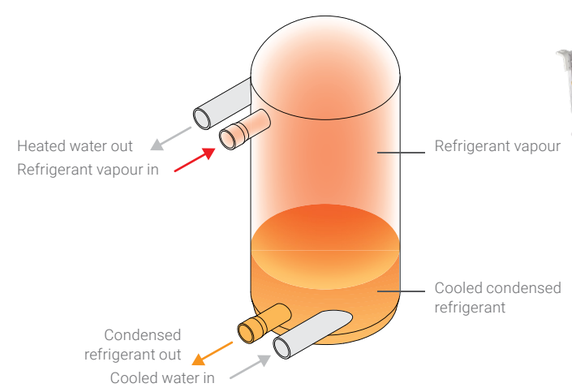
HWP-ECO Range

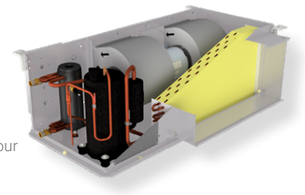
The HWP-ECO Series has been developed with many innovative features allowing for complete flexibility and control in many applications

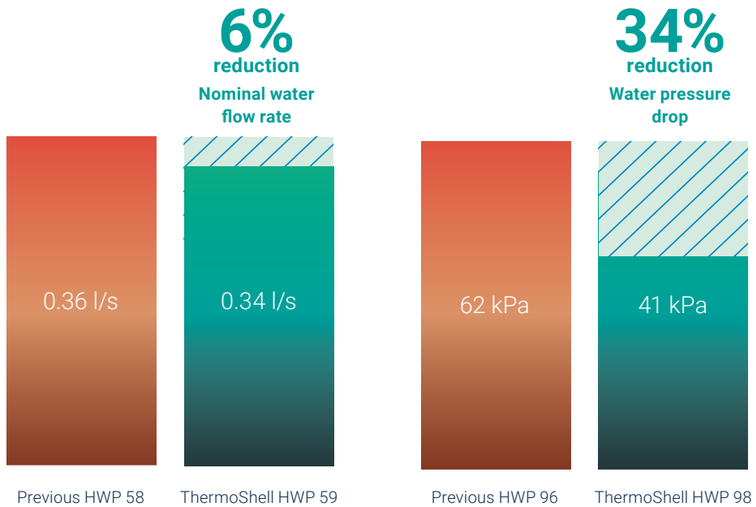
ThermoShell® Efficiency Water Side Heat Exchanger

ThermoShell® technology

Offering up to 6% reduction in nominal water flow rate and up to 34% reduction in water pressure drop, Temperzone's state-of-the-art ThermoShell® sets new standards in water-cooled technology. Enabling a reduction in hydronic equipment size, it reduces capital and operating costs while increasing building sustainability.







Cost Savings with ThermoShell® Technology

Temperzone's state-of-the-art ThermoShell® sets new standards in water-cooled technology.

Enabling Cost Savings

ThermoShell® technology is Temperzone's new high performance, compact heat-exchanger for refrigerant and water systems.

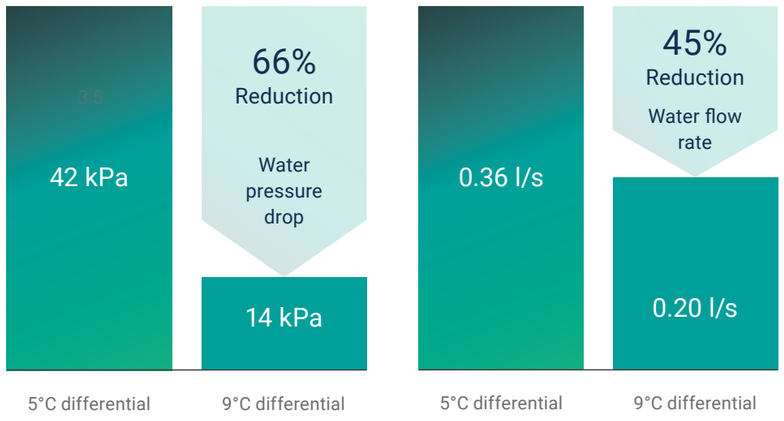
ThermoShell® enables considerably lower water flow rates and water pressure drops to be accommodated by the system, with minimal effect on duty and efficiency. This leads to a reduction in hydronic equipment size, reducing capital and operating costs.

The effect of a decreased water flow rate through a 5.9kW water cooled packaged unit with ThermoShell® was measured under laboratory conditions to examine the overall effect on duty and EER*.

It was shown that increasing the temperature differential across the condenser to 9°C by significantly decreasing the water flow rate had only a minimal effect on the duty and EER of the unit.

Also, individual units will run much more efficiently when only a proportion of the units are operating at any one time. Therefore, real world efficiencies will be greater then design efficiencies.

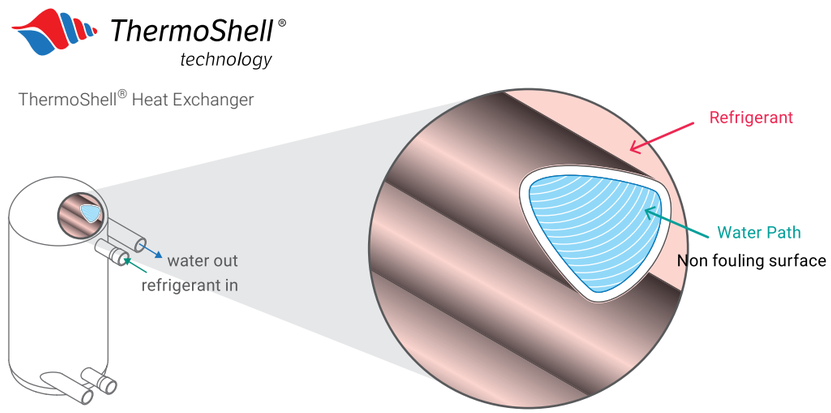
* HWP 59 was tested under typical conditions of IAT 27/19°C, EWT 30°C,



Life Long Efficiency

Unlike coaxial and plate-type heat exchangers, ThermoShell® prevents degradation in heat transfer efficiency due to water fouling, facilitating reliable operation throughout the unit service life.

ThermoShell Technology



Coaxial Heat Exchanger

Piping has a very undulated surface making it prone to extreme water fouling.

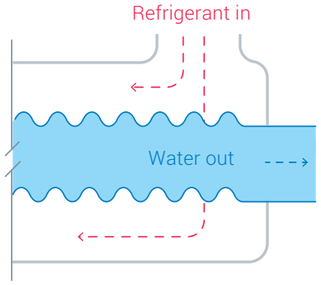
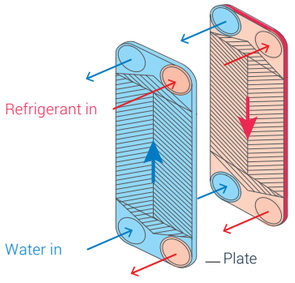


Plate Heat Exchanger

Many plates at extremely close intervals create a very receptive fouling service.



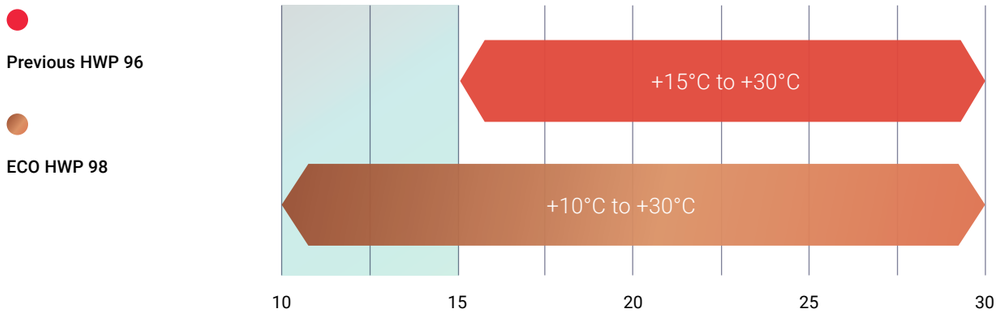
Greater Design Flexibility

Wider Temperature Operating Range

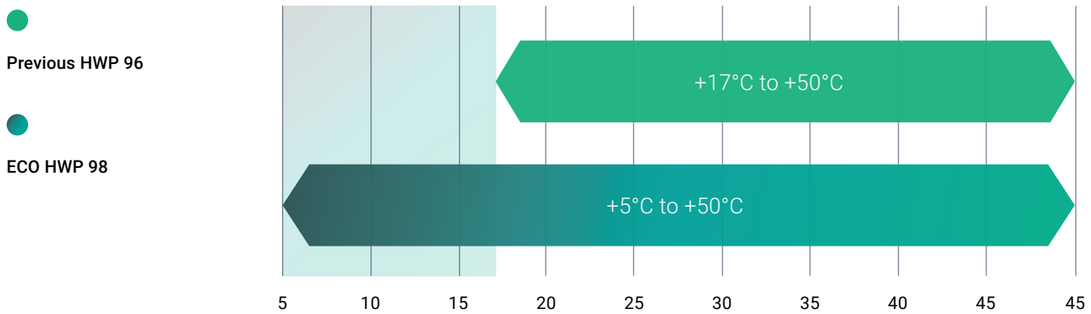
ThermoShell's wider water temperature operating range offers greater flexibility when retrofitted into any older installations.

In buildings where the condenser water loop is over 15 years old electric heating was widely used. As these buildings lack boilers, the addition of reverse cycle units can lead to the problem of unstable operation in heating mode.

In contrast, ThermoShell heat exchangers enable a wider water temperature operating range, allowing for greater flexibility in the condenser water loop and a maintenance of stable operation.



EWT range in heating at nominal water flow (°C)



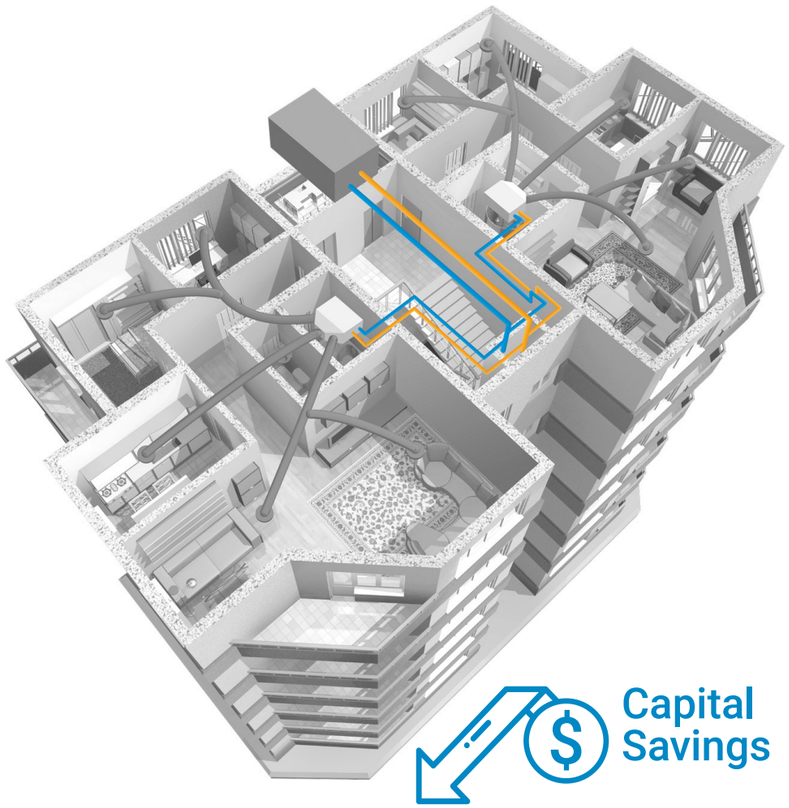
EWT range in cooling at nominal water flow (°C)

Significant Capital Savings

Reduced Running Costs

Laboratory testing, outlined on the following two pages, showed that increasing the temperature differential across the condenser to 10°C has **minimal effect on the duty or EER of the units**, the increase in LWT occurs at system design conditions with the majority of operating conditions at slightly lower total system capacity than design conditions.

The reductions in pressure drop achieved by increasing the LWT up to a 10°C differential temperature is considerable, enabling a reduction in both pipe and pump sizes throughout the building leading to reduced costs in capital equipment and running costs.



ThermoShell® Project Savings

ThermoShell® technology

There are considerable capital costings in the installation of a system if the water flow rate, under design conditions, can be reduced.

Doubling the temperature differential across the condenser results in:

› A halving of the water flow rate.

› A quarter of the pressure drop the pump has to overcome.

This allows the pipe and pump sizing to be reduced, which results in the lowered capital cost. The advantages of an increased design temperature differential needs to be balanced with the reduction in the duty and the efficiency of the unit under design conditions. The effect of decreased flow rate through the ThermoShell was measured under laboratory conditions and the results are presented here.

HWP 59 Performance Test

HWP 59 was tested under typical conditions of OAT 35°C, IAT 27/ 19°C, EWT 30°C with LWT ranging from 35-45°C.

EWT (°C)	30	30	30	30	30	30
LWT (°C)	35.1	37.1	39.0	41.2	43.5	45.5
Flow (l/s)	**0.36**	**0.25**	**0.20**	**0.16**	**0.13**	**0.11**
Duty (kW)	5.66	5.56	5.46	5.35	5.25	5.16
Power (kW)	1.55	1.56	1.59	1.64	1.70	1.74
EER	**3.65**	**3.56**	**3.43**	**3.26**	**3.09**	**2.97**
Water Duty (kW)	7.67	7.54	7.52	7.50	7.37	7.12
Pressure Drop (kPa)	**42.0**	**17.5**	**14.0**	**7.0**	**3.5**	**3.5**

HWP 59 Performance Test

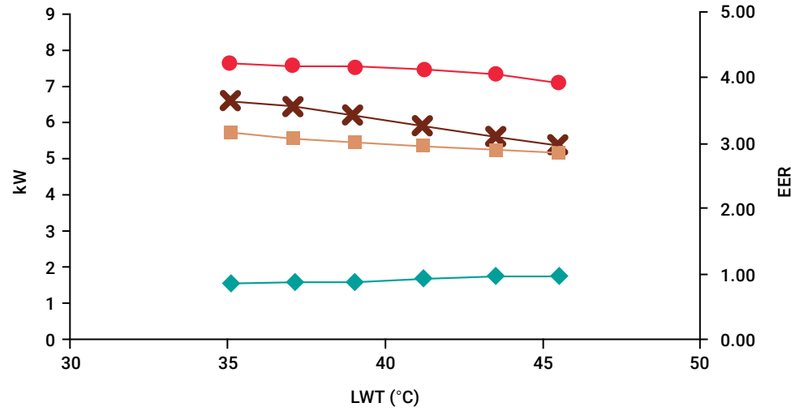
Water Duty

EER

Duty

Power

A **5°C increase in LWT** results in water flow rates down from **0.36 l/s to 0.18 l/s** and a pressure drop decrease from **42kPa to 10kPa.** This graph illustrates no significant corresponding change to duty power and EER.



HWP 79 Performance Test

HWP 79 was tested under typical conditions of OAT 35°C, IAT 27/ 19°C, EWT 30°C with LWT ranging from 35-45°C.

EWT (°C)	30	30	30	30	30	30
LWT (°C)	35.1	37.1	39.0	41.2	43.5	45.5
Flow (l/s)	**0.53**	**0.35**	**0.28**	**0.22**	**0.18**	**0.16**
Duty (kW)	7.99	7.72	7.65	7.52	7.36	7.31
Power (kW)	2.01	2.06	2.10	2.16	2.20	2.25
EER	**3.98**	**3.75**	**3.64**	**3.48**	**3.35**	**3.25**
Water Duty (kW)	11.00	10.70	10.50	10.20	10.20	9.82
Pressure Drop (kPa)	**70**	**28**	**21**	**14**	**7**	**7**

HWP 79 Performance Test

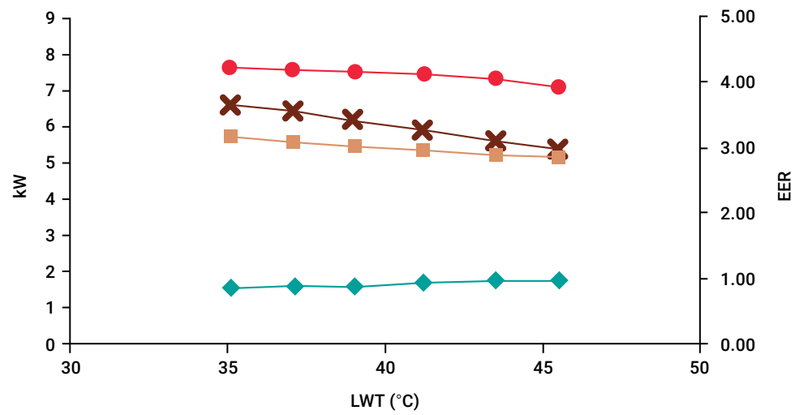
Water Duty

EER

Duty

Power

A **5°C increase in LWT** results in water flow rates down from **0.53 l/s to 0.25 l/s** and a pressure drop decrease from **70kPa to 17kPa.** This graph illustrates no significant corresponding change to duty power and EER.



Control Options

Temperzone's individual UC Intuitive control system makes it easy to maintain a space at the prescribed temperature.

The UC pcb not only protects the unit operation but it also provides many other key functions. It has the ability to be controlled by three different control methods (low level, local control and BMS)

Third Party, Low level

Simple terminals allow connection to any 12VDC/24VDC controller where fan speed, mode and operation can be controlled (all HWP models).

Local Control

Incorporating the UC8 controller (HWP36~275) can be connected to a TZT100 or SAT-3 controller via RS485 modbus.

TZT-100

Features
Auto change over between cool and heat
7-day programmable time clock
Key board and temperature looks
3 speed fan control
Programmable occupancy inputs
Auto start after Power failure

SAT-3

Features
Input for remote on/off start
7 Day programmable time clock
Sleep function
On demand timer count down timer up to 3hrs
Set temperature: -15 ~ 30°C at 0.5°C increments
Auto start after power failure

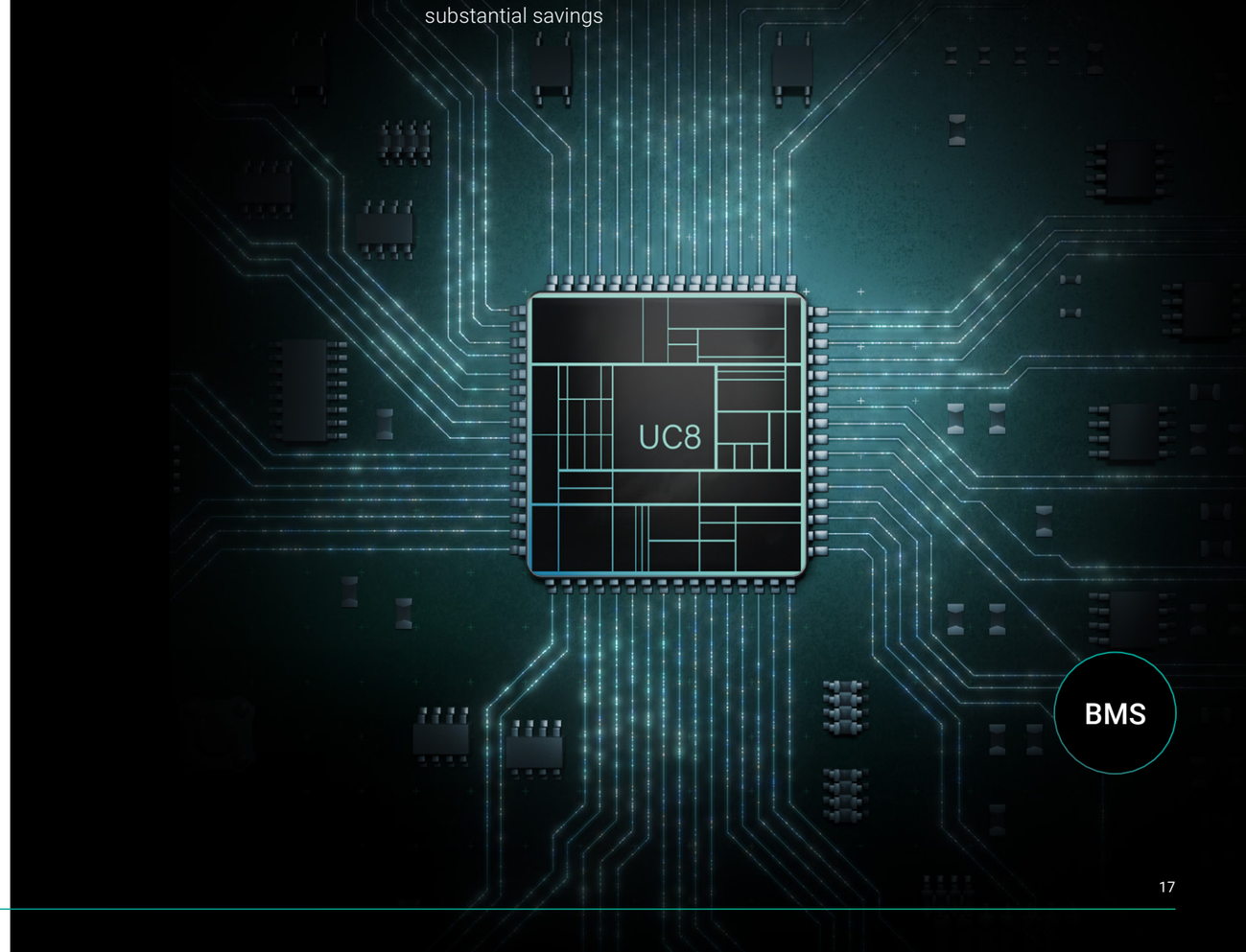
BMS Connectivity

HWP models from 36~275 can be controlled by a BMS via modbus/RS485 port with multi-unit control capability.

- Up to 99 units can be connected on a common RS485 bus in daisy chain design
- BMS communication cable (2-wire shielded)
- Maximum cable length of 1000m

Benefits of BMS connectivity

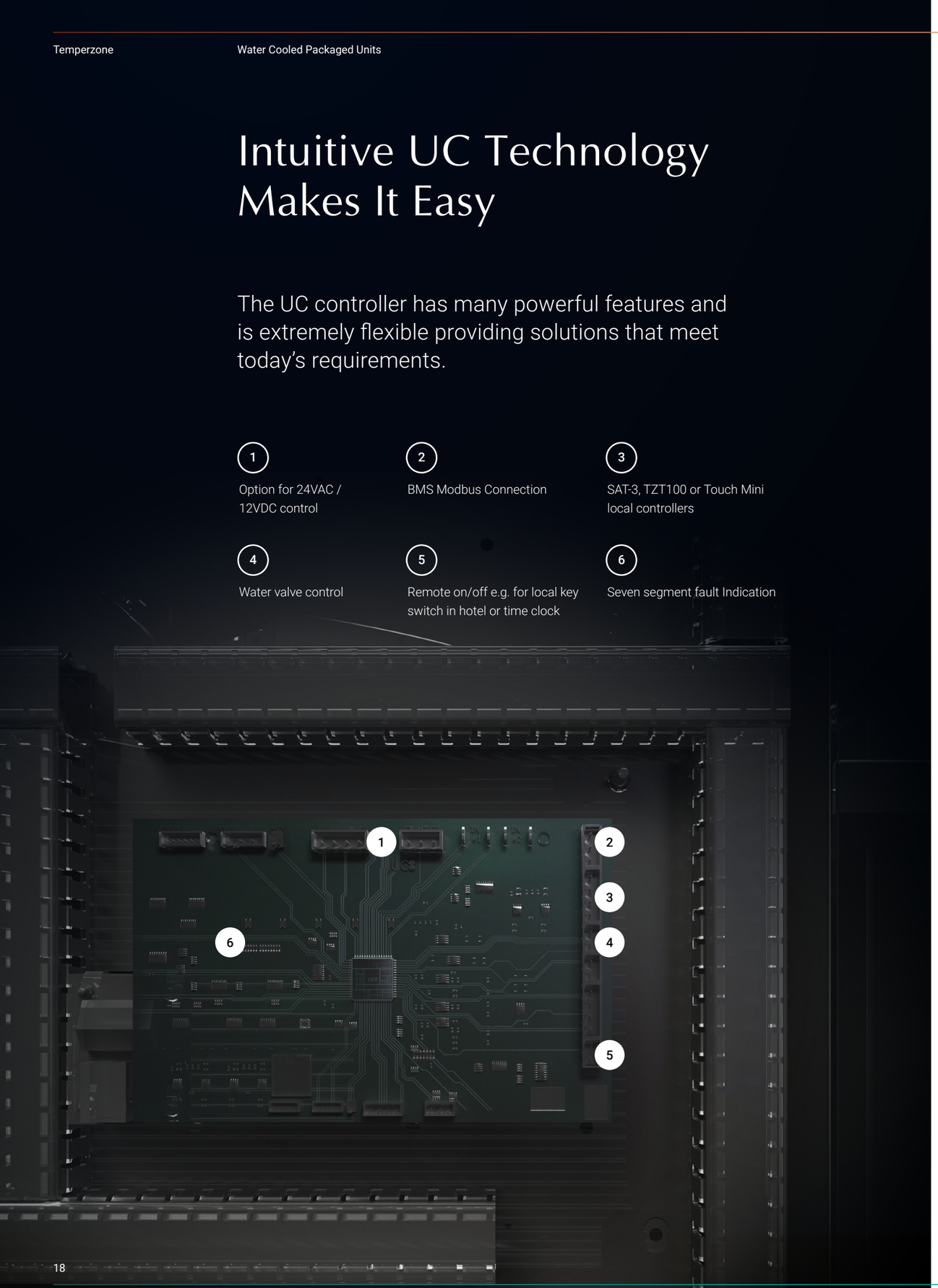
- In some applications cable requirements are reduced from 11 wires to 2 with greater level of control
- Installation of 3rd party BMS relay boards are not required providing substantial savings
- Reduced wiring and labour
- Ability to monitor units from PC
- Ability for global scheduling
- Ability to view faults and operation data



Intuitive UC Technology Makes It Easy

The UC controller has many powerful features and is extremely flexible providing solutions that meet today's requirements.

1. Option for 24VAC / 12VDC control
2. BMS Modbus Connection
3. SAT-3, TZT100 or Touch Mini local controllers
4. Water valve control
5. Remote on/off e.g. for local key switch in hotel or time clock
6. Seven segment fault Indication



Water Valve Control

The UC controller can operate a modulating water valve or a on/off shut off valve.

The water regulating valve 0-10VDC reference can be provided directly from the UC controller in the HWP. The water regulating valve will be controlled to obtain an optimum condensing temperature providing a higher EER at varying air on conditions.

When the unit is off the water valve control signal is at 0V, which closes the valve and stops the water flow providing the ability to reduce pump energy consumption.

When a call to cool or heat occurs the initial valve control signal is set to 10V to fully open the valve. The valve (10VDC) is given 40 seconds of time to open before the compressor is started.

When the unit is cooling the valve control signal will vary to obtain the optimum condensing temperature for efficient operation of the unit.

The valve will modulate in cooling but will operate at 100% open in heating. The other benefits of controlling the valve directly from the HWP is that no 0-10VDC BMS card is required, less wiring and no accessing the refrigeration system.

*** See technical data manual for applicable valves**

The UC controller can be used to power a water shut-off valve. This will ensure the water is not flowing through the unit when it is not operational for a long period of time. This reduces the overall central pump power usage.

Flush Cycle

The UC controller has a flush cycle. If the valve has been closed for 24hrs it will briefly open to flush the water system and move the valve to prevent seizing.

A water flush request can be remotely issued via Modbus communications over RS485 wiring. It will cause the water valve to fully open for the duration of the request. The request is only effective when the unit is off (not cooling, not heating).

Pump Call

The UC controller has built in pump call relays that activate whenever the compressor is required to run.
The pump call output is solid relay contacts. The contacts are voltage-free, suitable for 24V AC or 230V AC, maximum current is 0.25A. The solid-state relay cannot switch DC signals.

This provide a convenient way to manage the pump call other than operating through a BMS.

Remote Start/Stop

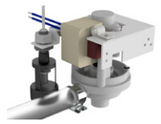
A remote on/off signal can be connected to the "On" and "0V" terminals (input for a voltage-free switch or relay contact). To turn the unit on the remote on/off input must be **closed-circuit.** The compressor minimum run-time is 90 seconds.

Remote on/off is ideal for connection to key locks or motion detection in a hotel or apartment to automatically switch the unit off when not required.

Flexible Handing Options

Flexible handing configurations available to suit the application.

Flexible Hoses Option
HWP models 36 ~ 275 come standard with hoses. Hoses are optional for the HWP 370 & 445.



Drain Pumps Option
The optional 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. Available on all models 35 ~ 445.

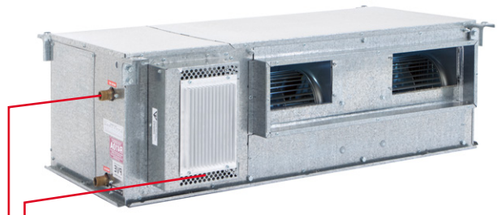
Controller Option
Optional controllers include:
› SAT3
› TZT100
All of these controllers are rich in features and can be connected to the Eco HWP models via RS485 modbus.

Spring Kit Option
HWP models 36 ~ 445 come standard with spring mounting kits.

Spring mounting kits can be purchased separately if required.

Standard Handing

Std Configuration	Front RH	Side RH
Electrical Panel	●	
Water Connections		●



Opposite Handing

Std Configuration	Front LH	Side LH
Electrical Panel	●	
Water Connections		●

Opposite handing units are not stocked.
They are made to order for specific projects.

HWP Options & Features

● **Standard**

□ **Optional**

The range of options available allow you to customise your desired unit, giving you ultimate control and flexibility.

Model	ECO ○ HWP 36~118	ECO ○ HWP 142~275	● HWP 36~118	● HWP 142~275	● HWP 370~445
Features					
EC Fan Motor (Y) version	●	●	N/A	N/A	N/A
AC Fan Motor version	N/A	N/A	●	●	●
0-10VDC Fan Speed Control	●	●	N/A	N/A	N/A
Handing Options	□	□	□	□	□
BMS Connection	●	●	●	●	N/A
Pump Call	●	●	●	●	●
Electronic Expansion Valves	N/A	●	N/A	●	N/A
Cooling & Heating					
Reverse Cycle	●	●	●	●	●
Cooling Only	□	□	□	□	□
Cooling / Electrical Heat	●	●	●	●	●
Filters					
G2 Filter	●	●	●	●	●
Controller Options					
Modbus connection	●	●	●	●	N/A
TZT-100	□	□	□	□	N/A
SAT-3	□	□	□	□	N/A

CWP Vertical Package Unit Features

High Efficiency EC Fan
EC fans CWP 63 ~ 178

Plug Fans
CWP 217 ~ 568

Variable Pitch Pulley
CWP 890 & 1030

Wide ESP
Models with EC or Plug fans make airflow control simple

External Control
External controller can easily be connected through relay terminals

Powder Coated Cabinet
Advanced powder coating ensures sheet metal life and provide a more aesthetically pleasing finish

Top Discharge Supply Air
All models have a standard top supply air configuration however some larger models have an option for back supply air

Cooling With Electric Heating
CWP 60 ~ 178 models are available as cooling only with electric heaters. Heaters have double high temperature safeties

Cool Only
CWP 890 & 1030 models are available made to order as cooling only

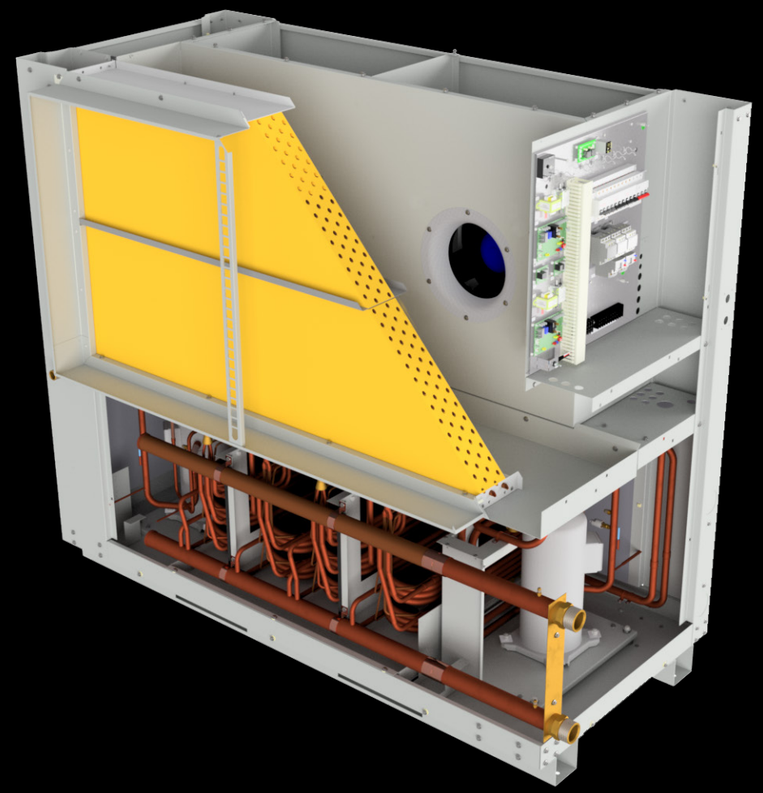
Reverse Cycle
All CWP units are available as reverse cycle for projects that require heating from the water loop

Knock Down
Units are available in knock down form for difficult to access plant rooms

Service Access
Simple access to compressors and heat exchangers

AUSTRALIAN MADE

CWP 63 ~ 1030



Evolving Water-Cooled Systems

Rather than having to plan your entire air conditioning layout in advance, Temperzone's water-cooled modular technology offers you the unique ability to expand or adapt your system as a building's commercial demands evolve.

Complete Solutions

Multiple units can be used to cater for vastly different uses within the same building. For example, you can choose to cool or heat a large open-plan office area while also employing a range of separate water-cooled units to service 20 small meeting rooms. And because each unit connects to an individual metre and power source, users are only billed for their own usage. It's just another way Temperzone's water-cooled range gives tenants complete control of their air conditioning needs.

CWP-K Series

The CWP-K Series of vertical discharge water cooled package units have been designed to provide year round comfort to the space they are serving. The CWP-K units have been designed and developed to comply with AS / NZS 3823 specified conditions The CWP-K units are available in four versions:

- **RE** - Reverse Cycle / Electric Heat
- **R** - Reverse Cycle
- **CE** - Cooling Only / Electric Heat
- **C** - Cooling Only

CWP 60 ~ 178 models are also available with either top condenser water connections, or front condenser water connections.

Multiple CWP-K units are typically part of an overall hydronic system that incorporates some form of heat rejection equipment, usually a Cooling Tower or a Radiator cooler (Dry Cooler).

Refrigerant

Each unit is factory charged with refrigerant R410A, which is deemed to have an ODP (Ozone Depletion Potential) of Zero.

Evaporator Coil

Manufactured by Temperzone, this is a die formed plate type, epoxy coated aluminium fins mechanically bonded to high efficiency rifle bored copper tube.

Condensor Coil

Manufactured by Temperzone, this a copper / 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 2760kPa (400psi)

Construction

Galvanised steel construction, the cabinet is finished in a baked powder coat finish, closed cell foam insulation is used, with a polyester galvanised sheet steel / baked polyester powder coat finish condensate drain tray, insulated to avoid sweating.

Compressor

A high efficiency scroll compressor or compressors are used within the units

Insulation

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

Flexible Handing Options

Flexible handing configurations available to suit the application.

Flexible Hoses Option
Hoses are an optional extra. There are difference hoses available depending on the model.

CWP 63 (20mm x 600mm)
CWP 83~109 (25mm x 800mm)
CWP 132~178 (32mmx 1300mm)

EEV Option
EEV offers optimum control of superheat for outstanding comfort and humidity control.
Available as a custom option from the CWP 217 ~ 1030

Digital 1st Stage Option
Custom option available for improved capacity control. 0-100% continuous modulation enables wide capacity range and provides better humidity control at low capacity. Available as a custom option from the CWP 217 ~ 1030

Standard Handing

Std. Configuration	Water Connections
CWP 63 ~ 178	Top RH, or Front RH
CWP 217 ~ 374	Front RH
CWP 447 ~ 1030	Side RH

Opposite Handing

Std. Configuration	Water Connections
CWP 217 ~ 374	Front LH
CWP 447 ~ 1030	Side LH

Opposite handing units are not stocked.
They are made to order for specific projects.

● Standard

□ Optional

CWP Options & Features

The range of options available allow you to customise your desired unit, giving you ultimate control and flexibility.

Model	CWP 63 ~ 178	CWP 217 ~ 568	CWP 890	CWP 1030
Features				
EC Fan Motor (Y) version	●	N/A	N/A	N/A
AC Fan Motor version	N/A	N/A	●	●
EC Plug Fan	N/A	●	□	□
0-10VDC Fan Speed Control	●	●	□	□
Number of circuits	1	2	2	4
Epoxy coated evaporator coil	●	●	●	●
Water hoses	□	N/A	N/A	N/A
TZ Protection PCB	●	●	●	●
Cooling & Heating				
Reverse Cycle	●	●	●	●
Cooling Only	□	□	□	□
Cooling / Electrical Heat	●	●	●	●
Filters				
1/2” Panel Filter	●	□	□	□

Australian Made

CWP 63 ~ 1030 are manufactured in our Sydney Factory. The famous Australian Made logo is Australia’s most trusted, recognised and widely used country of origin symbol, and is underpinned by a third-party accreditation system, which ensures products are certified as ‘genuinely Australian’.

AUSTRALIAN MADE

CWP 63 ~ 1030

ThermoShell®
Case Study

Case Study

This apartment project in Melbourne, with over 200 ThermoShell HWP units, utilised the water-flow flexibility the ThermoShell allows to gain significant capital and installation savings:

› Delta T changed from 5.5 to 11.5 on average.

› Flow rate reduced from approximately 70 l/s toapprox 33 l/s.

Original design pump sizes were 2 x 18.5kW pumps, revised design reduced them to 2 x 11kW pumps.

Original design required a main 250mm steel riser, before tapering down. Revised design reduced main riser to 150mm copper.

Temperzone
Customer Care

Customer Care

Temperzone Customer Care is designed to deliver the highest level of support and accessibility to all our customers. This program provides factory trained technicians with the ability to resolve issues on-site, significantly reducing guesswork from commissioning.

With Temperzone products continually evolving to provide higher levels of efficiency, control and protection we want our customers to have the comfort of knowledge that Temperzone will be there right along-side them for the entire product life cycle.

Temperzone offers a wide range of training courses in application, service and commissioning.

ECO Range
HWP-Y Specifications

Horizontal-Single Phase

1 Single Phase

eco complete control

Model	HWP 36Y	HWP 48Y	HWP 59Y	HWP 79Y	HWP 98Y
Capacity (Range) kW*					
Nominal Cooling Capacity (kW)[2]	3.5	4.4	5.9	8.1	9.9
Net Cooling Capacity (kW)	3.4	4.3	5.7	7.9	9.8
Efficiency Cooling (EER/AEER) [7]	3.69 / 3.67	3.79 / 3.77	3.75 / 3.73	3.94 / 3.92	3.95 / 3.94
Heating Capacity (kW) [3]	3.7	4.6	5.4	8.9	11.3
Efficiency Heating (COP/ACOP)	4.08 / 4.04	4.17 / 4.14	3.87 / 3.85	4.36 / 4.35	4.35 / 4.34
Electric Heat Option (kW)	2	2	3	4	4
Airflow					
Nominal Supply Air Flow (l/sec)	190	230	320	500	560
Noise Data [4]					
Sound Pressure Level (db(a))	35	35	41	45	44
Power					
Power Supply [1]	Single Phase (230 - 240V 50Hz)				
Run Amps at Nominal Condition [6]	4.0	5.0	6.8	8.7	11.0
Heat Exchanger	ThermoShell®				
Water					
Water Flow (l/sec)	0.22	0.28	0.34	0.50	0.61
Water Pressure Drop (kPA/psi)	27.6 / 4	27.6 / 4	41 / 6	70 / 10	41 / 6
Water Connections (ø mm / BSP)	13 / ½"	13 / ½"	13 / ½"	19 / ¾"	19 / ¾"
Dimensions					
Size Dimensions W x H x D (mm)	928 x 355 x 788	928 x 355 x 788	1256 x 355 x 788	1213 x 415 x 781	1213 x 415 x 781
Weight (kg)	75	75	90	107	116

Notes:
1 Voltage fluctuation limits: Single Phase models 200–252 V.a.c.
2 Nominal Cooling Capacity at AS/NZS 3823.1.3 conditions: Entering Water Temperature 30°C; Entering Air Temperature 27°C D.B., 19°C W.B.
3 Heating Capacity (HWP R version only) at AS/NZS 3823.1.3 conditions: Entering Water Temperature 21°C; Entering Air Temperature 21°C D.B.
4 SPL measured to JIS 8616 (1 m from source) at nominal supply air flow, with 1 m insulated duct.

ECO Range
HWP-Y Specifications

Horizontal-Three Phase

3 Three Phase

eco complete control

Model	HWP 118Y	HWP 142Y	HWP 172Y	HWP 192Y	HWP 255Y	HWP 275Y
Capacity (Range) kW*						
Nominal Cooling Capacity (kW)[2]	12.2	14.7	18.5	21.2	25.5	27.5
Net Cooling Capacity (kW)	11.9	14.1	17.4	19.9	24.8	26.7
Efficiency Cooling (EER/AEER) [7]	4.17 / 4.16	4.45 / 4.44	4.35 / 4.32	4.44 / 4.42	4.65 / 4.63	4.48 / 4.47
Heating Capacity (kW) [3]	11.6	14.5	16.7	18.6	23.0	24.6
Efficiency Heating (COP/ACOP)	3.92 / 3.91	4.36 / 4.35	4.28 / 4.25	4.32 / 4.30	4.59 / 4.58	4.37 / 4.36
Electric Heat Option (kW)	6	6	9	9	12	12
Airflow						
Nominal Supply Air Flow (l/sec)	620	775	1015	1160	1220	1400
Noise Data [4]						
Sound Pressure Level (db(a))	50	51	54	53	55	54
Power						
Power Supply [1]	3 Phase (400V 50Hz)					
Run Amps at Nominal Condition [6]	4.9 / 4.1 / 4.1	6.0 / 4.6 / 4.6	7.6 / 6.0 / 6.0	10.0/ 7.0 / 7.0	11.0 / 8.0 / 8.0	13.0 / 9.5 / 9.5
Heat Exchanger	ThermoShell®					
Water						
Water Flow (l/sec)	0.75	0.88	1.06	1.26	1.53	1.63
Water Pressure Drop (kPA/psi)	55 / 8	69 / 10	83 / 12	34 / 5	48 / 7	55 / 8
Water Connections (ø mm / BSP)	19 / ¾"	19 / ¾"	25 / 1"	25 / 1"	25 / 1"	25 / 1"
Dimensions						
Size Dimensions W x H x D (mm)	1283 x 425 x 781	1283 x 507 x 831	1513 x 507 x 831	1763 x 507 x 831	1998 x 507 x 831	2198 x 507 x 831
Weight (kg)	118	143	160	184	190	192

5 Pressure Drops based on nominal water flow.
6 Reverse Cycle Series.
7 EER/AEER based on reverse cycle series

Materials and specifications subject to change without notice due to the manufacturer's ongoing research and development programme.

Standard Range HWP Specifications

1 Single Phase

Horizontal-Single Phase

Model	HWP 36	HWP 48	HWP 59	HWP 79	HWP 98
Capacity (Range) kW*					
Nominal Cooling Capacity (kW)[2]	3.5	4.4	5.9	8.1	9.9
Net Cooling Capacity (kW)	3.4	4.3	5.8	7.9	9.8
Efficiency Cooling (EER/AEER) [7]	3.64 / 3.61	3.64 / 3.62	3.61 / 3.60	3.71 / 3.70	3.77 / 3.76
Heating Capacity (kW) [3]	3.7	4.6	5.4	8.9	11.1
Efficiency Heating (COP/ACOP)	3.82 / 3.79	3.66 / 3.64	3.62 / 3.61	4.18 / 4.16	4.22 / 4.21
Electric Heat Option (kW)	2	2	3	4	4
Airflow					
Nominal Supply Air Flow (l/sec)	190	230	320	500	560
Noise Data [4]					
Sound Pressure Level (db(a))	37	37	43	43	43
Power					
Power Supply [1]	Single Phase (230 - 240V 50Hz)				
Run Amps at Nominal Condition [6]	4.2	5.2	7.6	9.1	11.5
Heat Exchanger	ThermoShell®				
Water					
Water Flow (l/sec)	0.22	0.28	0.34	0.50	0.61
Water Pressure Drop (kPA/psi)	27.6 / 4	27.6 / 4	41 / 6	70 / 10	41 / 6
Water Connections (ø mm / BSP)	13 / ½"	13 / ½"	13 / ½"	19 / ¾"	19 / ¾"
Dimensions					
Size Dimensions W x H x D (mm)	928 x 355 x 788	928 x 355 x 788	1256 x 355 x 788	1213 x 415 x 721	1213 x 415 x 721
Weight (kg)	70	70	85	102	112

Notes:
1 Voltage fluctuation limits: Single Phase models 200–252 V.a.c.
2 Nominal Cooling Capacity at AS/NZS 3823.1.3 conditions: Entering Water Temperature 30°C; Entering Air Temperature 27°C D.B., 19°C W.B.
3 Heating Capacity (HWP R version only) at AS/NZS 3823.1.3 conditions: Entering Water Temperature 21°C; Entering Air Temperature 21°C D.B.
4 SPL measured to JIS 8616 (1 m from source) at nominal supply air flow, with 1 m insulated duct.

Standard Range HWP Specifications

3 Three Phase

Horizontal-Three Phase

Model	HWP 118	HWP 142	HWP 172	HWP 192	HWP 255	HWP 275	HWP 370	HWP 445
Capacity (Range) kW*								
Nominal Cooling Capacity (kW)[2]	12.2	14.7	18.5	21.2	25.5	27.5	36.6	44.5
Net Cooling Capacity (kW)	11.9	14.1	17.4	19.9	24.7	26.9	34.65	42.2
Efficiency Cooling (EER/AEER) [7]	3.84 / 3.83	3.80 / 3.79	4.24 / 4.22	4.11 / 4.09	4.29 / 4.28	4.23 / 4.22	3.71 / 3.70	3.41 / 3.41
Heating Capacity (kW) [3]	11.9	14.8	16.4	18.6	23.0	24.6	34.9	42.2
Efficiency Heating (COP/ACOP)	3.80 / 3.79	4.10 / 4.09	4.10 / 4.09	4.23 / 4.21	4.31 / 4.30	4.13 / 4.12	3.86 / 3.85	3.64 / 3.64
Electric Heat Option (kW)	6	6	9	9	12	12	18	24
Airflow								
Nominal Supply Air Flow (l/sec)	620	775	1015	1160	1220	1400	1900	2300
Noise Data [4]								
Sound Pressure Level (db(a))	48	48	48	45	47	55	63	64
Power								
Power Supply [1]	3 Phase (400V 50Hz)							
Run Amps at Nominal Condition [6]	6.1 / 3.7 / 4.2	7.9 / 4.6 / 4.5	10.2 / 6.0 / 5.9	12.0 / 7.0 / 7.0	13.5 / 8.0 / 8.0	15.0 / 9.5 / 9.5	18.38 / 18.38 / 14.2	22.98 / 22.98 / 22.98
Heat Exchanger	ThermoShell®						Tube / Tube	
Water								
Water Flow (l/sec)	0.75	0.88	1.06	1.26	1.53	1.63	2.0	2.25
Water Pressure Drop (kPA/psi)	55 / 8	69 / 10	83 / 12	34 / 5	48 / 7	55 / 8	48.3 / 7	34.5 / 5
Water Connections (ø mm / BSP)	19 / ¾"	19 / ¾"	25 / 1"	25 / 1"	25 / 1"	25 / 1"	32 / 1¼"	32 / 1¼"
Dimensions								
Size Dimensions W x H x D (mm)	1283x425x721	1283x507x771	1513x507x771	1763x507x771	1998x507x771	2198x507x771	2050x655x875	2280x673x875
Weight (kg)	117	141	153	177	190	199	290	385

5 Pressure Drops based on nominal water flow.
6 Reverse Cycle Series.
7 EER/AEER based on reverse cycle series

Materials and specifications subject to change without notice due to the manufacturer's ongoing research and development programme.

CWP Range Specifications

CWP 63 ~ 1030

1 Single Phase

Vertical-Single Phase

Model	CWP 63	CWP 83	CWP 96	CWP 109	CWP 132
Capacity (Range) kW*					
Nominal Cooling Capacity (kW)[2]	6.27	8.31	9.63	10.9	13.14
Net Cooling Capacity (kW)	6.14	8.09	9.37	10.58	12.77
Efficiency Cooling (EER/AEER) [7]	3.53 / 3.51	3.64 / 3.58	3.56 / 3.55	3.53 / 3.51	3.52 / 3.51
Heating Capacity (kW) [3]	6.63	8.34	9.58	10.27	11.9
Efficiency Heating (COP/ACOP)	4.31 / 4.28	4.32 / 4.27	4.06 / 4.00	3.89 / 3.80	3.86 / 3.80
Electric Heat Option (kW)	2.5	3	4	4.5	5.5
Airflow					
Nominal Supply Air Flow (l/sec)	380	490	570	600	770
Noise Data [4]					
Sound Pressure Level (db(a))	55.1	60.4	63.4	63.4	58.6
Power					
Power Supply [1]	Single Phase (230 - 240V 50Hz)				
Run Amps at Nominal Condition [6]	7.5	9.7	11.4	15.3	16.0
Heat Exchanger	Tube / Tube				
Water					
Water Flow (l/sec)	0.42	0.5	0.58	0.67	0.8
Water Pressure Drop (kPA/psi)	20.7 / 3	27.6 / 4	34.5 / 5	27.6 / 4	41.4 / 6
Water Connections (ø mm / BSP)	19 / ¾"	25 / 1"	25 / 1"	25 / 1"	32 / 1¼"
Dimensions					
Size Dimensions W x H x D (mm)	740 x 1430 x 650	740 x 1465 x 650	740 x 1465 x 650	740 x 1465 x 650	855 x 1400 x 780
Weight (kg)	150	170	170	176	216

Notes:
1 Voltage fluctuation limits: Single Phase models 200–252 V.a.c.
2 Nominal Cooling Capacity at AS/NZS 3823.1.3 conditions: Entering Water Temperature 30°C; Entering Air Temperature 27°C D.B., 19°C W.B.
3 Heating Capacity (CWP R version only) at AS/NZS 3823.1.3 conditions: Entering Water Temperature 21°C; Entering Air Temperature 21°C D.B.
4 SPL measured to JIS 8616 (1 m from source) at nominal supply air flow, with 1 m insulated duct.

CWP Range Specifications

CWP 63 ~ 1030

3 Three Phase

Vertical-Three Phase

Model	CWP 109	CWP 132	CWP 178	CWP 217	CWP 266	CWP 374	CWP 447	CWP 568	CWP 890	CWP 1030
Capacity (Range) kW*										
Nominal Cooling Capacity (kW)[2]	10.87	13.14	17.8	21.74	26.28	37.44	44.7	57.5	89.0	101.6
Net Cooling Capacity (kW)	10.58	12.77	17.25	21.16	25.54	36.13	42.9	55.7	86.9	94.5
Efficiency Cooling (EER/AEER) [7]	3.53 / 3.51	3.52 / 3.51	3.58 / 3.52	3.51 / 3.50	3.7 / 3.6	3.65 / 3.64	3.37 / 3.36	3.72 / 3.65	3.45 / 3.22	2.94 / 2.92
Heating Capacity (kW) [3]	10.27	11.9	16.41	20.54	23.8	35.5	46.6	54.9	84.4	98.6
Efficiency Heating (COP/ACOP)	3.89 / 3.80	3.86 / 3.80	3.98 / 3.97	4.10 /4.00	3.84 / 3.78	4.06 / 4.05	3.99 / 3.98	4.0 / 3.90	3.59 / 3.58	3.31 / 3.30
Electric Heat Option (kW)	4.5	5.5	6.5	8	10	15	21	22.5	34.5	39
Airflow										
Nominal Supply Air Flow (l/sec)	600	770	920	1210	1535	1940	2315	2935	4600	4960
Noise Data [4]										
Sound Pressure Level (db(a))	63.4	58.6	62.9	69.3	66.3	72.3	69.3	69.3	82	81
Power										
Power Supply [1]	3 Phase (400V 50Hz)									
Run Amps at Nominal Condition [6]	5.8 / 4.5 / 4.4	6.0 / 5.7 / 5.7	8.2 / 8.0 / 8.0	10.2 / 10.2 / 10	12.0 / 11.4 / 11.4	16.7 / 16.3 / 16.3	22.3 / 21.9 / 22.1	31.8 / 36.4 / 30.8	45.1 / 46.0 / 45.7	60.3 / 60.3 / 57.1
Heat Exchanger	Tube / Tube									
Water										
Water Flow (l/sec)	0.67	0.8	1.08	1.34	1.60	2.27	2.6	3.4	4.9	5.7
Water Pressure Drop (kPA/psi)	27.6 / 4	41.4 / 6	34.5 / 5	27.6 / 4	27.6 / 4	27.6 / 4	27.6 / 4	27.6 / 4	34.5 / 5	31.05 / 4.5
Water Connections (ø mm / BSP)	25 / 1"	32 / 1¼"	32 / 1¼"	38 / 1½"	38 / 1½"	51 / 2"	51 / 2"	51 / 2"	64 / 2½"	76 / 3"
Dimensions										
Size Dimensions W x H x D (mm)	740 x 1465 x 650	855 x 1400 x 780	855 x 1400 x 780	1320 x 1490 x 1035	1520 x 1490 x 1035	1520 x 1745 x 1035	2070 x 1845 x 1090	2070 x 2100 x 1090	1990 x 1905 x 1160	2320 x 2225 x 1365
Weight (kg)	176	216	226	330	460	530	655	770	795	1140

5 Pressure Drops based on nominal water flow.
6 Reverse Cycle Series.
7 EER/AEER based on reverse cycle series

Materials and specifications subject to change without notice due to the manufacturer's ongoing research and development programme.

AUSTRALIAN MADE

CWP 63 ~ 1030

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