

WATER COOLED

Water Cooled Inverter Package Units

Introducing
the NEW
CWP 90
ECO ULTRA



 **ThermoShell**[®]
technology

R32

 **temperzone**
climate innovations

CWP 90 ECO ULTRA

 **COOLING CAPACITY**
4.1kW ~ 10.0kW

 **HEATING CAPACITY**
3.7kW ~ 8.9kW

Heating figure based on reverse cycle

**Compact & efficient
yet powerful.**

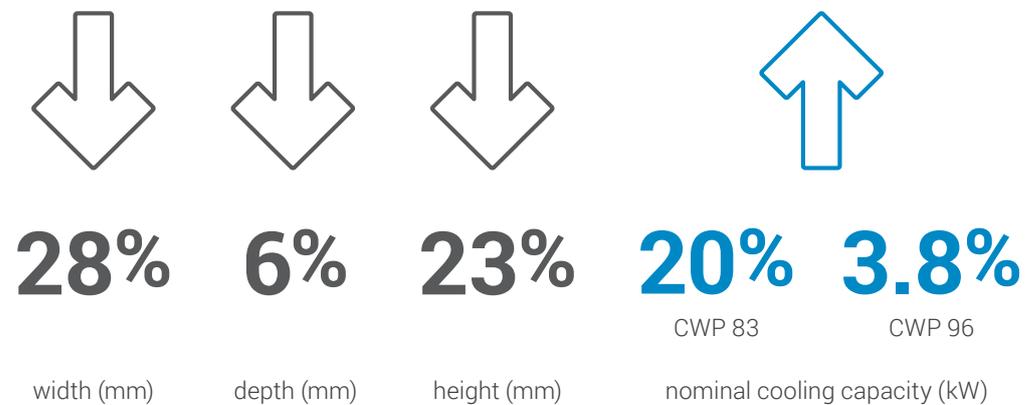


*Touch mini coming soon



We've made things simple by creating a compact unit that's big on innovation.

So compact it makes perfect sense as an energy efficient solution for new or replacement projects.



* Dimension comparison based on CWP 96 model

Energy efficient comfort control

With the use of an inverter compressor combined with an electronic expansion valve the CWP 90 ECO ULTRA provides a precise load variation response and superior part load performance for closer comfort control and higher energy efficiency.

The CWP 90 is designed to run on an individual power supply, eliminating the need to install expensive central plants. Being internally installed packaged units, they're perfect for many installations where the use of balcony units is prohibited.

75-80% reduction in GWP

Utilising R32 Refrigerant, Temperzone's CWP 90 enables a 75-80% reduction of Global Warming Potential (GWP) per kW of cooling when compared to R410a units. Temperzone leads the commercial HVAC industry in focusing to reduce the lifetime carbon footprint of air conditioning products.

ECO ULTRA CWP 90



HIGH EFFICIENCY EC FAN

Can be controlled either as a speed or by 0-10VDC.



INVERTER COMPRESSOR

Provides superior part load performance and efficiency.



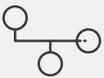
THERMOSHELL

Lower pressure drops.
Water loop Anti Fouling design.
Higher Performance.



COMPACT

Made to fit most applications.



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 in-depth data.



ELECTRONIC EXPANSION VALVE

Provides greater control and efficiency.



R32 REFRIGERANT

Low Global Warming Potential (GWP)



COOLING ONLY

All CWP units 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.



COOLING WITH ELECTRIC HEATING

All CWP units are available as Cooling only with additional electric heaters. Heaters have double high temperature safeties.

**Big on
performance
small in size.**



**47.9% less volume
than the previous
CWP 83 & 96 models**

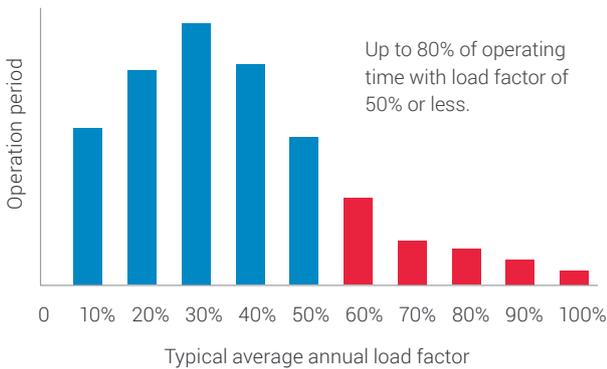
	CWP 90	CWP 96
Width	530mm O/D	740mm O/D
Height	1115mm O/D	1465mm O/D
Depth	589mm O/D	626mm O/D

Inverter Technology

The CWP 90 utilises inverter compressor technology providing superior part load performance and close comfort control.

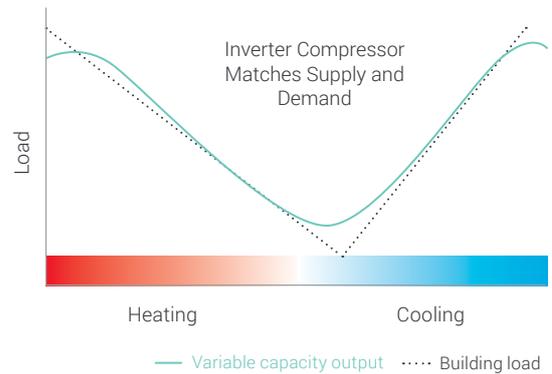
Energy Efficient

CWP 90's inverter compressors are more efficient at part load capacity where the system mostly operates.



Close Comfort Control

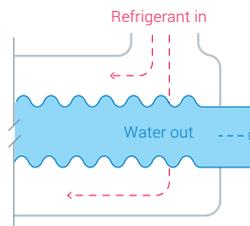
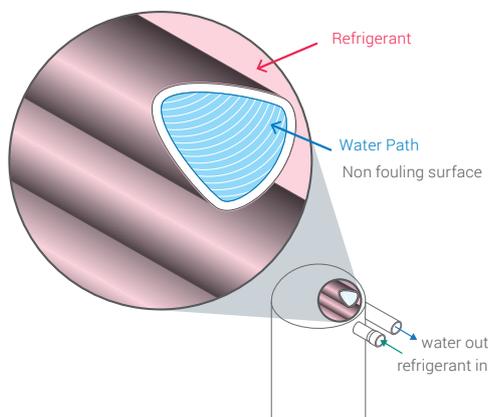
Inverter compressor matches the energy requirements during operating time to provide high levels of comfort.



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® Heat Exchanger



Coaxial Heat Exchanger

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

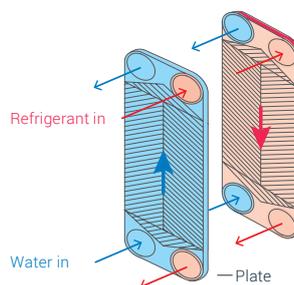


Plate Heat Exchanger

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



Technological Advancements

Cost Savings with ThermoShell®

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

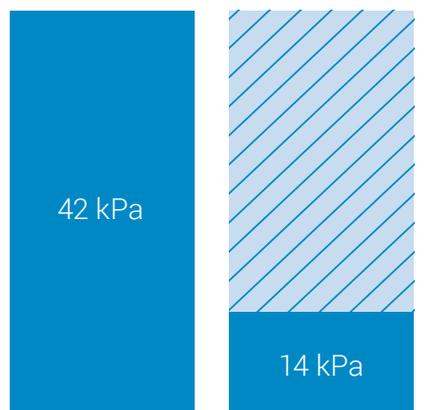
ThermoShell® technology is Temperzone's new high performance, compact heat-exchanger for refrigerant and water systems.

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.

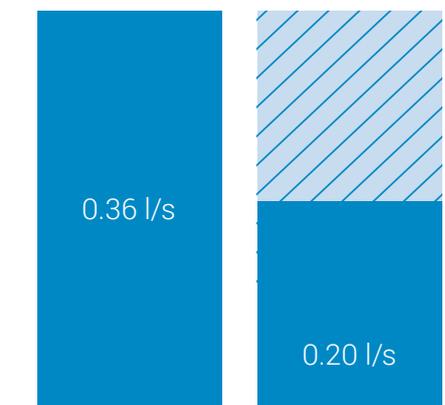
The effect of a decreased water flow rate through a 5.9kW water cooled packaged unit with ThermoShell® was measured under laboratory conditions to examine the overall effect on duty and EER*.

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 than design efficiencies.



66%
reduction
Water
pressure
drop



45%
reduction
Water
flow
rate

5°C differential

9°C differential

5°C differential

9°C differential

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

Control

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)

CWP 90 offers three levels of control:



Third Party, low level

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



Local Control, CWP models

Incorporating the UC8 controller the CWP 90 can be connected to the TZZ100 or SAT-3 controller via modbus.

TOUCH MINI (coming soon)

Infrared approaching sensor

ECO Energy Saving Setting

Self-Learning Function

7 Day Timer Function

3 speed fan control



TZZ-100

Auto change over between cool and heat

7 Day programmable time clock

Key board and temperature locks

3 speed fan control

Programmable occupancy inputs

Auto start after power failure



SAT-3

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 ~ 30C at 0.5C increments

Auto start after power failure





BMS Connectivity

The CWP 90 can be controlled via a BMS via Modbus/RS485 port with multi-unit control capability.

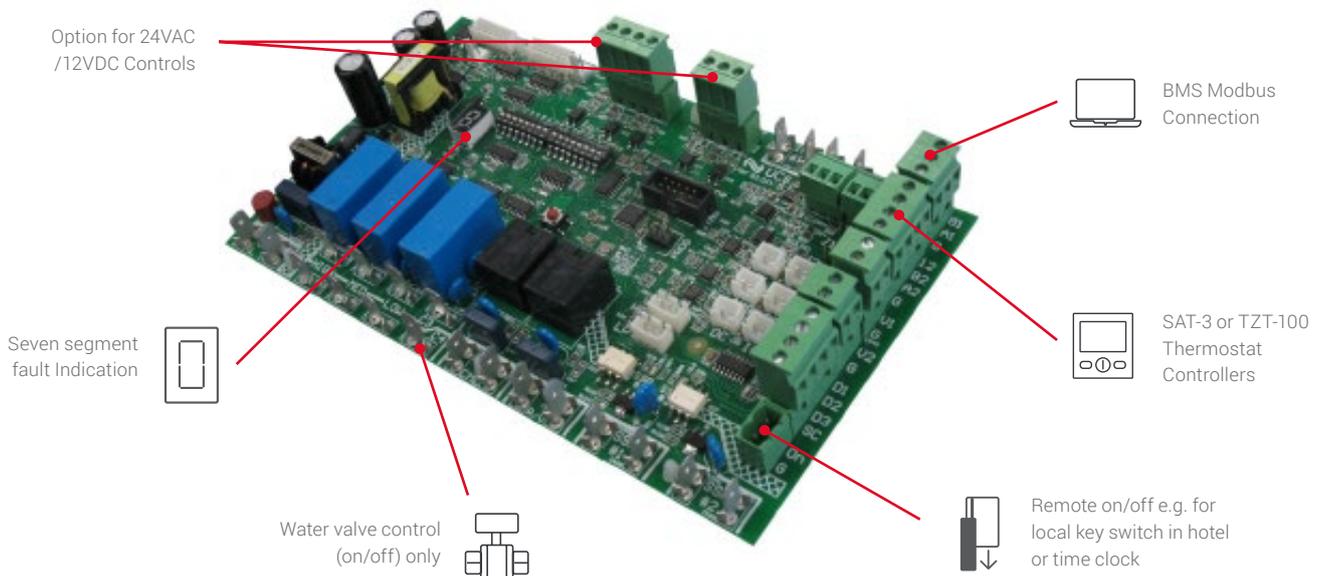
- Up to 99 units can be connected on a common RS485 bus in daisy chain design
- BMS communication cable (2-wire shielded)
- Maximum cable length of 1000m

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

Temperzone's intuitive UC technology makes it easy

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





Water Valve Control

The UC controller will operate the fitted on/off valve.

When the unit is off the water valve closes and stops the water flow which can reduce pump energy consumption.

When a call to cool or heat occurs the initial valve control signal fully opens the valve. The valve is given 40 seconds of time to open before the compressor is started.

The other benefits of controlling the valve directly from the CWP is that no BMS card is required, less wiring and no accessing the refrigeration system.

*See technical data manual for applicable valves



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.

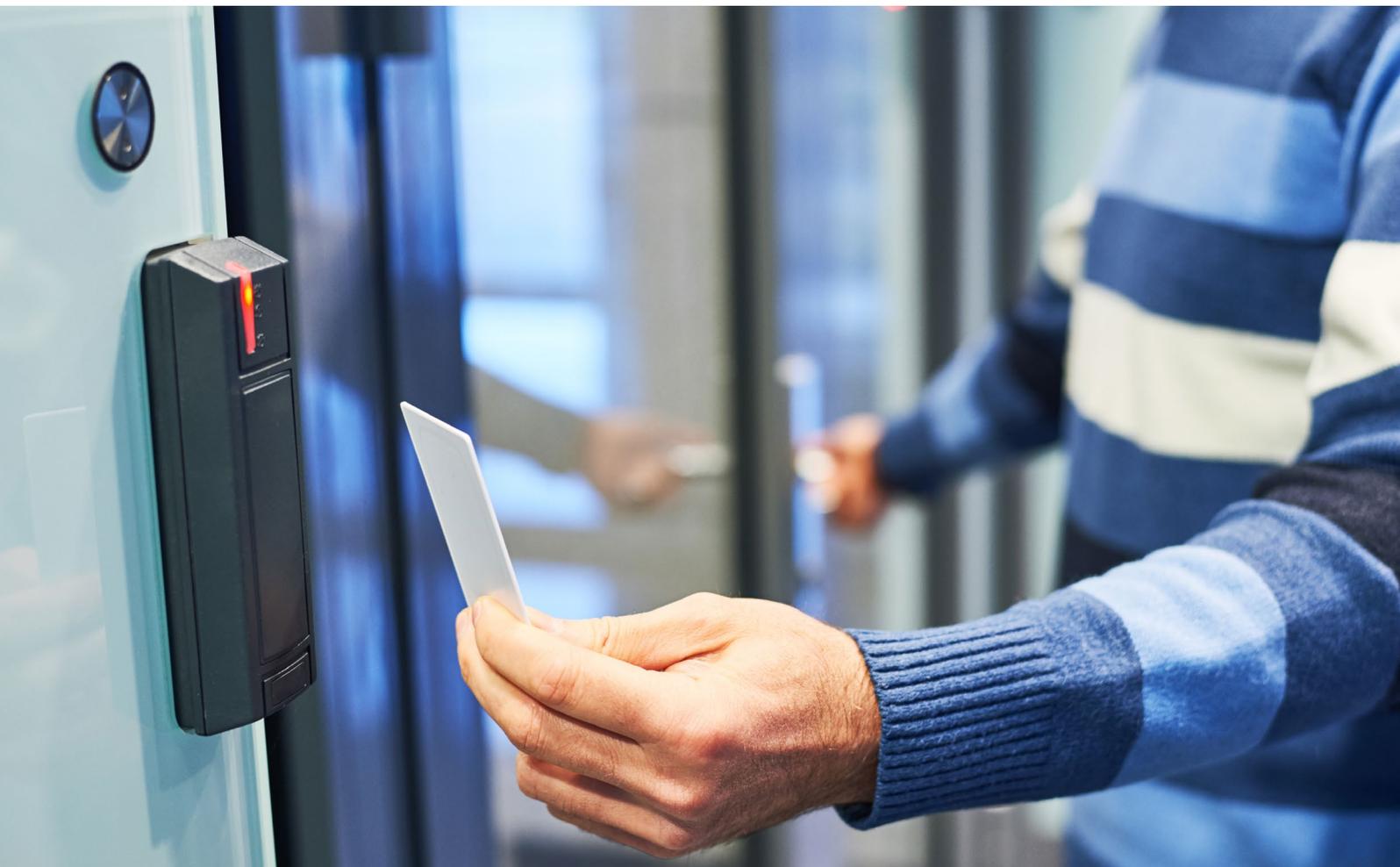
This provide a convenient way to manage the pump call other than operating through a BMS.



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.



ECO ULTRA

CWP 90 Specifications

Vertical-Single Phase



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

Model

CWP 90RELSFY

Capacity (Range) kW

Cooling Capacity Range (gross)	4.1 kW ~ 10.0 kW
Nominal Cooling Capacity* ¹	10.0 kW
Net Cooling Capacity (MEPS)	9.9 kW
EER / AEER (cooling)	3.84 / 3.76
Heating Capacity Range	3.7 kW ~ 8.9 kW
Heating Capacity* ²	8.9 kW
COP / ACOP (heating)	3.74 / 3.66
Electric Heat Option (CWP-CE)	3 kW

Supply Air

Air Flow * ³	370 l/s
Filter (EU2/G2 rated) * ⁸	supplied

Power

Power Source * ⁴	Single Phase (230 - 240V 50Hz)
Run Amps at Nominal Conditions	11.5 A
Max. Running Amps	15 A
Unit Controller	UC8
Refrigerant	R32

Water

Nominal Water Flow * ⁵	0.6 l/s
Minimum Water Flow * ⁶	0.17 l/s
Water Coil Pressure Drop* ⁷ kPa (psi)	62 (9)
Water connections	3/4" male BSP

Dimensions

Overall - Width x Height x Depth (mm)	530 x 1115 x 589
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Weight

Weight - excl. water / incl. water	90 kg / 92 kg
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NOTES:

*¹ 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.

*² 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.

*³ Air flows at nominal conditions above.

*⁴ Voltage fluctuation limits: Single phase systems 200–252 V; Three phase systems 342–436 V

*⁵ Nominal water flow at EWT - LWT = 5k.

*⁶ At nominal Entering Water Temperature: 30°C on cooling, 20°C on heating.

*⁷ At nominal water flow.

*⁸ Complies with AS 1324.1

*⁹ Heating mode.

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