econex

nex gen R32 inverter

WATER COOLED

Inverter Package Units



temperzone

climate innovations

econex

nex gen R32 inverter

Energy Efficient Low GWP Solutions

Econex HWP

Cooling Capacity Range
1.1 kW - 8.5 kW

Heating Capacity Range
1.6 kW - 9.2 kW

Econex CWP 90

Cooling Capacity Range
4.1 kW - 10.0 kW

Heating Capacity Range
3.7 kW - 8.9 kW



Inverter Water Cooled Package Features

econex
nex gen R32 inverter

Inverter Compressor
Provides superior part load performance and efficiency

High Efficiency EC Fan
Can be controlled either as a speed or by 0-10VDC

Thermoshell
Lower pressure drops [1].
Water loop Anti Fouling design.
Higher Performance

ThermoShell® technology

R32

R32 Refrigerant
Has a significantly lower GWP than R410A

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 though RS485 Modbus. This also provides in-depth data

Electronic Expansion Valve
Electronic expansion valves for greater control and efficiency

Wide Range Water Temperature [2]
Water temperatures from +5°C to +45°C

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

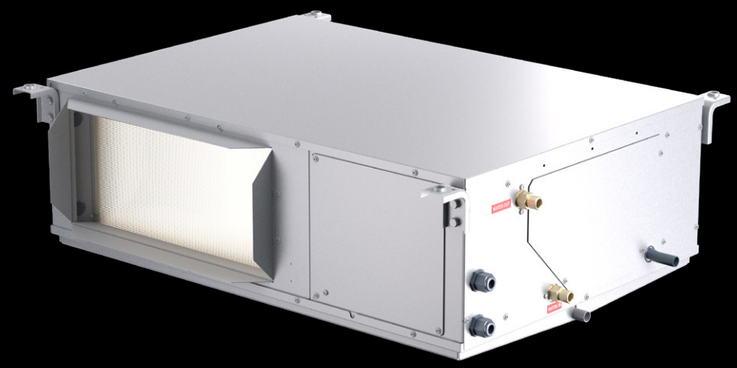
Reverse Cycle
HWP/CWP units are available as reverse cycle for projects that require heating from the water loop

Electric Heat Option [3]
HWP/CWP units are available as Cooling Only with Electric Heat. HWP also available as Reverse Cycle with Electric Heat

[1] When accompanied by lower water flow rates.

[2] Conditions apply. CWP 90 to +50°C.

[3] Econex HWP utilise PTC electric heat elements. Econex CWP utilise resistive. electric heat elements.



Econex HWP

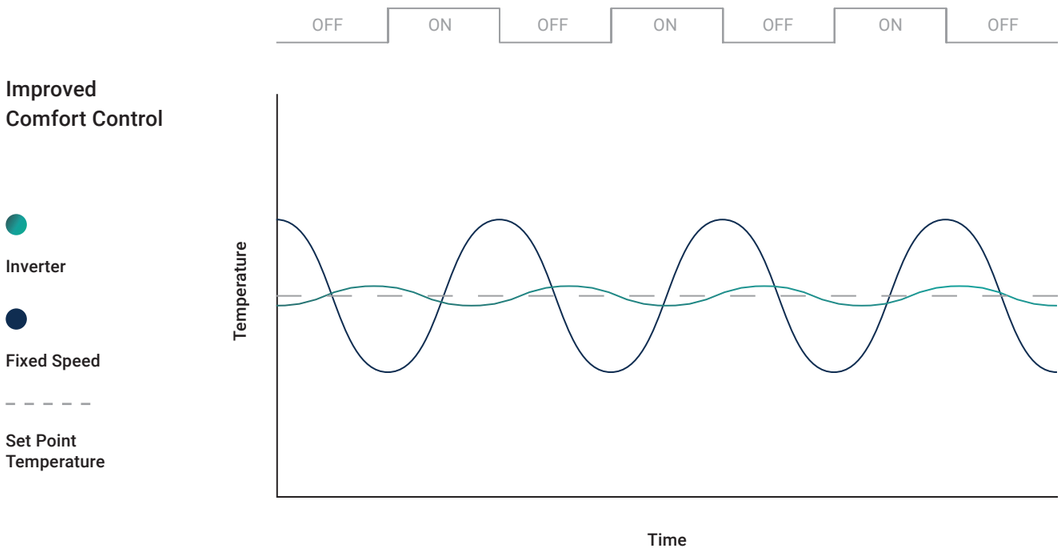


Econex CWP

Inverter Technology Efficiency and Comfort

The **Econex** water cooled package units utilises inverter compressor technology providing superior higher energy efficiency and close comfort control.

Improved Comfort Control



Inverter Comfort Control

Fixed speed air conditioners are single speed on/off systems. Once the desired temperature is reached, they turn off, turning back on only when the temperature drops below or rises above a set level. This cycling between full or no capacity causes unnecessary waste of electricity and doesn't maintain a constant room temperature.

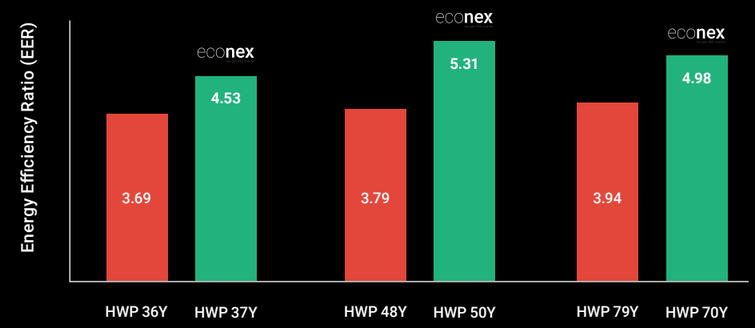
The use of variable capacity inverter compressors allow a precise load variation response for superior temperature control. The use of electronic expansion valves and variable speed indoor fans further allows a more effective, and efficient, response to varying load conditions.

Inverter Energy Efficiency

Econex inverter compressors only use the amount of energy to suit the operating condition maximising your SEER performance.

- Soft starting, using much less power at start up.
- Matching capacity to load avoids temperature fluctuation and reduces energy input power.
- Full inverter compressor range from 33-100% compressor speed.
- Reduced amount of start/stop for long life operation.

Econex HWP systems are significantly more energy efficient than previous models.

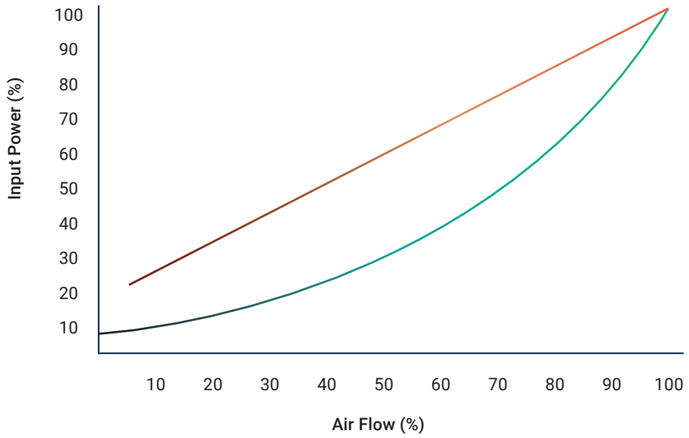




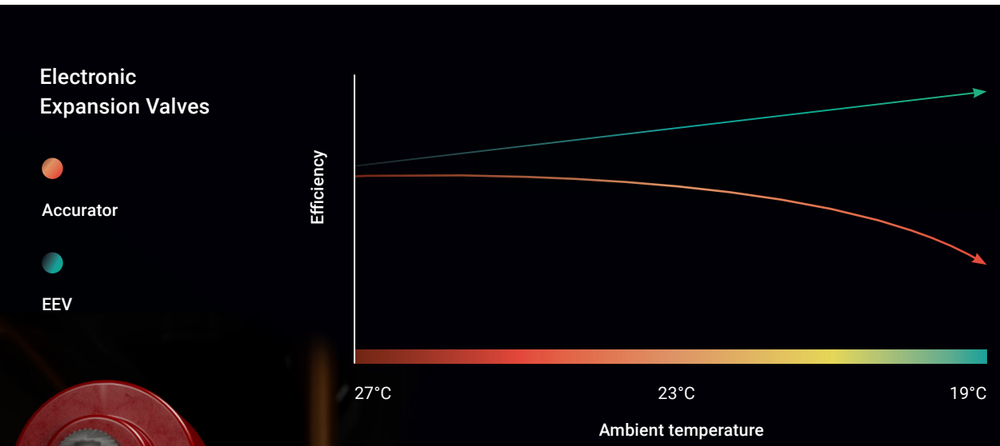
Energy Saving Technology

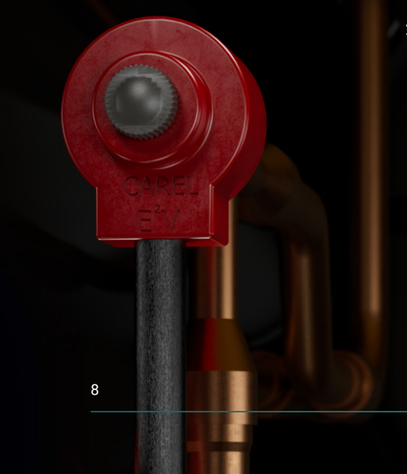
EC fan motors are very energy efficient and enable quiet operation with slow ramp-up and no sudden noise changes. Custom select fan speeds or continuously variable fan speed control achieve precise comfort.

EC Fan Technology



Electronic Expansion Valves





Benefits include:

- EEV's enable improved efficiency and reduced operating costs at part-load conditions.
- Facilitate maximised energy savings during the shoulder seasons – periods in which AC system often runs at part-load.

Lower Global Warming Potential

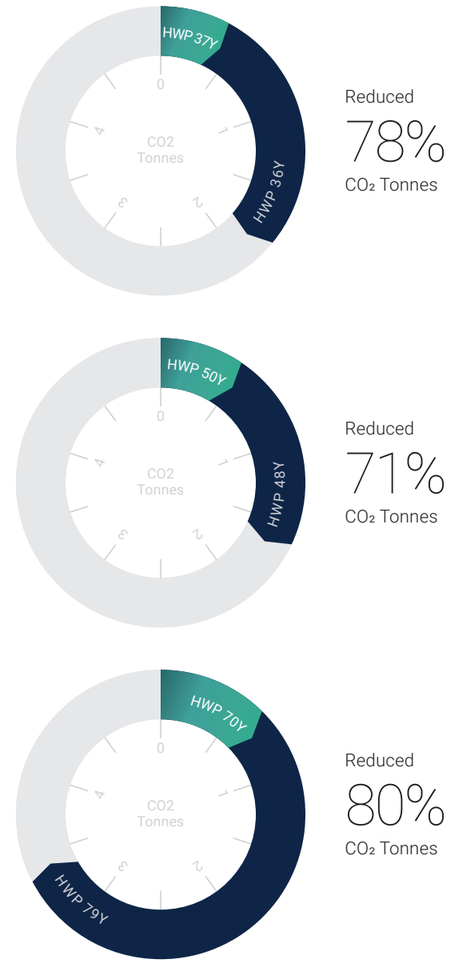
Lower Global Warming Potential

With a smaller refrigerant charge and a GWP of 675*, HWP Econex R32 refrigerant units result in a 71-80% reduction in overall GWP per kW of cooling or heating when compared to previous R410A systems (GWP 2088*).

Reducing Future Costs

As higher GWP refrigerants face increasing cost due to emissions tax levies the specification of R32 systems will represent a significant reduction in the future costs associated with owning and maintaining these systems.

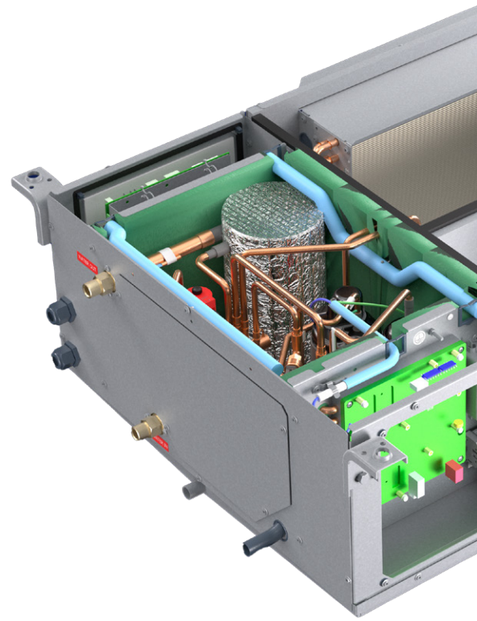
Potential Carbon Emissions attributed to refrigerant (CO_2 Tonnes)



Reduced
78%
CO_2 Tonnes

Reduced
71%
CO_2 Tonnes

Reduced
80%
CO_2 Tonnes



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.

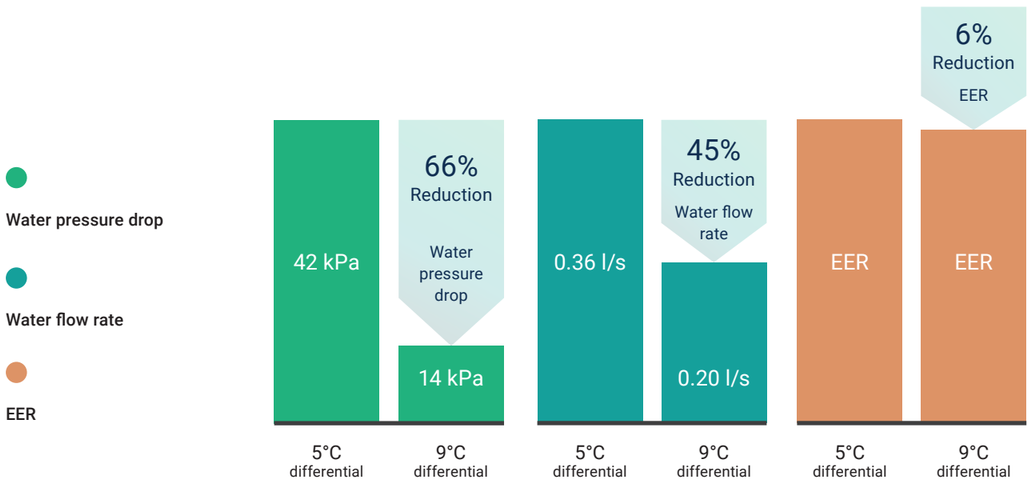
ThermoShell® enables considerably lower water flow rates and water pressure drops to be accommodated by the system, with minimal effect on duty and efficiency. This leads to a reduction in hydronic equipment size, reducing capital and operating costs.

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.

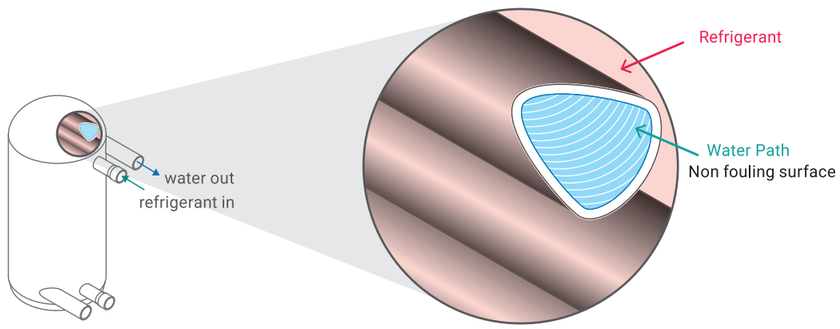
* HWP 59 was tested under typical conditions of IAT 27/19°C, EWT 30°C, EER reduced from 3.65 to 3.43.



Life Long Efficiency ThermoShell® Technology

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



ThermoShell® technology

ThermoShell® Heat Exchanger

Coaxial Heat Exchanger

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

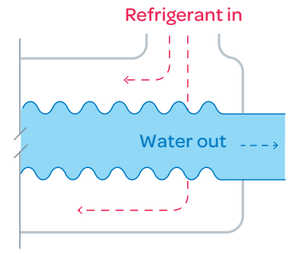
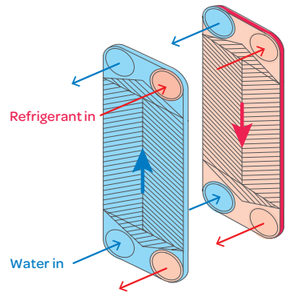


Plate Heat Exchanger

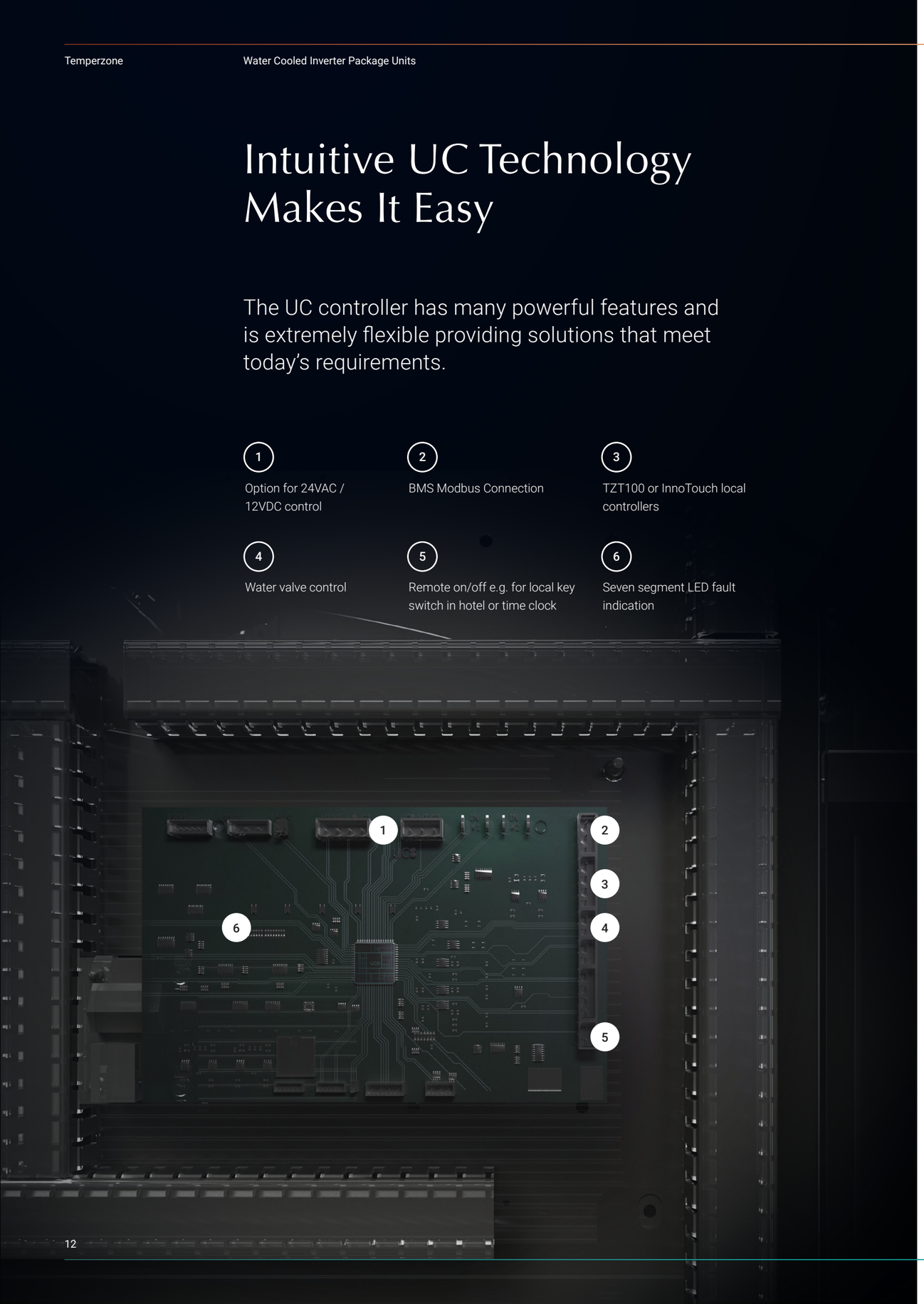
Many plates at extremely close intervals create a very receptive fouling service.



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. TZT100 or InnoTouch local controllers
4. Water valve control
5. Remote on/off e.g. for local key switch in hotel or time clock
6. Seven segment LED fault indication



Water Valve Control

The UC controller can operate a modulating water valve[1] or a on/off shut off valve[2].

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 50% valve opening (5.5Vdc). The valve is given 70 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 and 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.

The UC controller powers a water shut-off valve[2]. 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.

[1] HWP Only - fitted externally

[2] CWP90 Only - Built-in (internally fitted)

*** 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.

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

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



Local Control

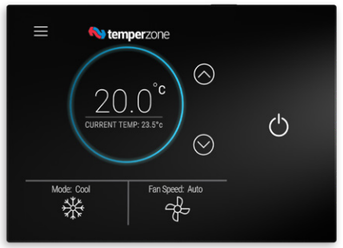
*** InnoTouch controller not compatible with CWP90**

Incorporating the UC8 controller Econex HWP/CWP can be connected to a TZT100 or InnoTouch controller* via RS485 modbus.



InnoTouch

Features
Full colour screen touch controller
Three-speed and auto indoor fan control
7 Days / 365 Days Scheduling
Multiple user group access with PIN-code
Cool, Heat, Fan Only and Dual set point
System Status and Alarm display
Service timers and maintenance reminders
Auto-restart functionality after power failure
Configurable override timer



TZT-100

Features
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



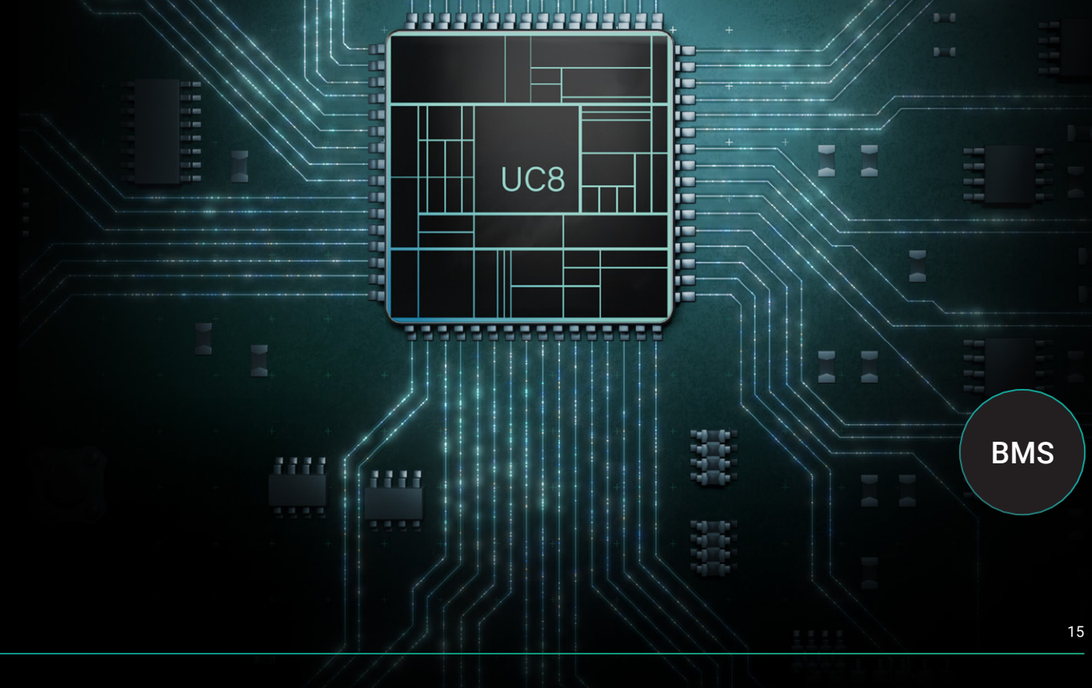
BMS Connectivity

Econex HWP/CWP models can be controlled by a BMS via modbus/RS485 port with multi-unit control capability.

- Multiple 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



HWP Configurations & Options

Flexible handing configurations and cooling and heating variants available to suit all applications.



Flexible Hoses Option
Optional hoses for Econex HWP.



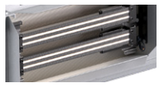
Drain Pumps Option
Optional Condensate lift-pump (1m head) has been designed to remove condensate from the unit in tight installations where a well sloped drain line (minimum 1 in 50 gradient) is not feasible.



Spring Kit Supplied
Spring kits and mounting brackets are supplied with every unit.

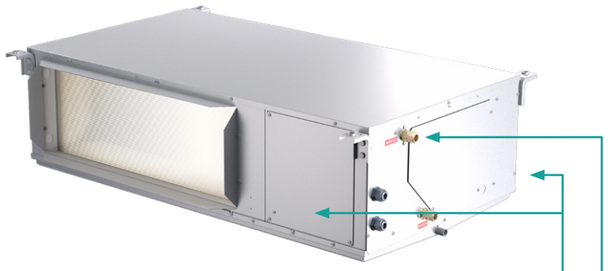


Water Modulating Valve Kit Option
A requirement for efficient operation of unit – available from Temperzone.



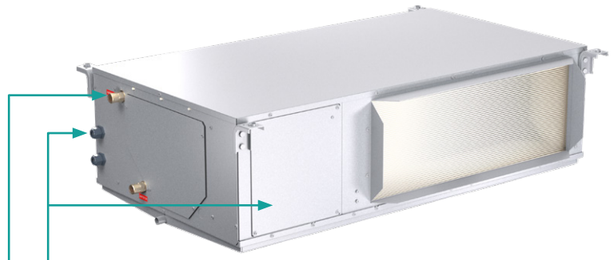
PTC Electric Heat Option
All HWP electric heat units feature Positive Temperature Co-efficient (PTC) elements, which adapts its output relative to air velocity. Due to this surface temperature control these safe self-limiting elements will not overheat.

The heating performance of these elements will vary based on both the entering air temperature and the airflow passing through the unit. This needs to be considered both for duty and for current draw on-site.



Standard Handing

Electrical Panel	Front RH (Ebox) Back RH (Inverter driver)
Water Connections	Side RH



Opposite Handing

Electrical Panel	Front LH (Ebox) Back LH (Inverter driver)
Water Connections	Side LH

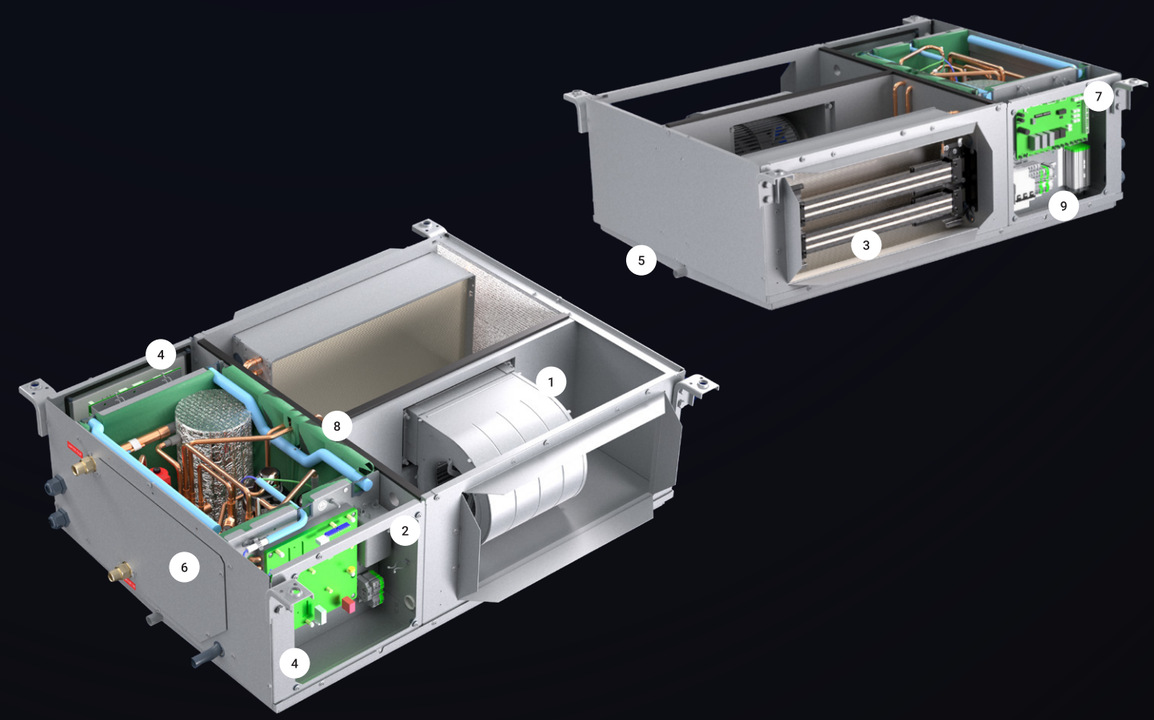
Cooling & Heating Variants

	HWP 25Y - 70Y
Reverse Cycle (R)	Standard offering
Cooling Only (C)	Standard offering
Reverse Cycle w Electrical Heat (RE)	Standard offering
Cooling w Electrical Heat (CE)	Standard offering

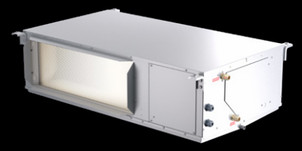
Reliable with Easy Installation & Maintenance

Econex HWP has been designed for long term reliability and to ensure easy installation and maintenance.

1. All-in-one EC fan motor and scroll for quick and simple replacement
2. Refrigerant cooled inverter driver for optimal operating temperatures and reliablility
3. PTC heating elements – self limiting for safe, reliable and maintenance-free heating
4. Convenient access to e-box and inverter driver with a seperate access panel for each
5. Full length V-slope drain tray with float switch protection
6. Multiple access covers for internal compartment access
7. UC8 7-segment fault display
   In-built electronic safeties
   Adjustable indoor airflow
8. Fully insulated compartments for low noise and superior performance
9. Convenient client wiring terminals for quick and easy wiring



Econex HWP Specifications



Model	HWP 25Y	HWP 37Y	HWP 50Y	HWP 70Y
Capacity (kW)				
Cooling Capacity (net) [1]	2.44	3.35	4.99	7.12
Cooling Capacity Range (gross)	1.10 kW ~ 2.74	1.14 kW ~ 3.51	2.35 kW ~ 5.88	3.52 kW ~ 8.46
Heating Capacity (reverse cycle) [1]	2.8	3.8	5.5	7.1
Heating Capacity Range	1.6 ~ 3.3	1.7 ~ 4.2	2.4 ~ 6.7	3.3 ~ 9.2
EER / AEER (cooling) [1]	4.77 / 4.37	4.53 / 4.26	5.31 / 4.96	4.98 / 4.82
COP / ACOP (heating) [1]	4.63 / 4.30	4.58 / 4.34	5.16 / 4.94	4.88 / 4.73
Electric Heat Option [2]	1.1	1.4	2.7	3.8
System				
Refrigerant	R32			
Compressor Type	Inverter Rotary			
Power (A)				
Power Supply [3]	1ph. 230V ac 50Hz + N + E			
Running amps - total system [1] (Nominal comp. speed)	2.4	3.3	4.4	6.7
Max Running amps (Total incl. EH) [4]	7.5	8.0	15.5	18.8
Supply Air (l/s)				
Nominal air flow at rating conditions	135	200	300	420
Water				
Nominal Water Flow (l/s)	0.17	0.22	0.31	0.44
Entering system pressure drop @ nominal flow	20 kPa (3 psi)	24 kPa (3.5 psi)	27 kPa (4 psi)	47 kPa (7 psi)
Water Connections	1/2" male BSP	1/2" male BSP	3/4" male BSP	3/4" male BSP
Dimensions				
Overall W x H x D (mm)	995 x 325 x 786	995 x 325 x 788	1261 x 364 x 788	1261 x 364 x 788
Weight				
Incl. Water Weight (kg) approx.	68	68	90	92

Notes:
1 Test in accordance with AS/NZS 3823
2 Nominal conditions: 15°C air on, nominal air flow
3 Voltage range: 216-253V
4 At 10°C air on, maximum air flow

Econex CWP Specifications



Model	CWP 90Y
Capacity (kW)	
Cooling Capacity (net) [1]	9.9
Cooling Capacity Range (gross)	4.1 ~ 10.0
Heating Capacity (reverse cycle) [1]	8.9
Heating Capacity Range	3.7 ~ 8.9
EER / AEER (cooling) [1]	3.84 / 3.76
COP / ACOP (heating) [1]	3.74 / 3.66
Electric Heat Option [5]	3
System	
Refrigerant	R32
Compressor Type	inverter rotary
Power	
Power Supply [3]	1ph. 230V ac 50Hz + N + E
Running amps - total system (Nominal comp. speed) [1]	11.0 A
Supply Air (l/s)	
Nominal air flow at rating conditions	370 l/s
Filter (EU2/G2 rated) [4]	Supplied
Water	
Nominal Water Flow (l/s)	0.6
Entering system pressure drop @ nominal flow	62 kPa (3 psi)
Water Connections	3/4" male BSP
Dimensions	
Overall W x H x D (mm)	530 x 1115 x 589
Weight	
Excl. water / incl. water	90 kg / 92 kg

Notes:
1 Test in accordance with AS/NZS 3823
2 Nominal conditions: 15°C air on, nominal air flow
3 Voltage range: 216-253V
4 Complies with AS 1324.1.
5 Resistive heater

5 Resi

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