SMART ENERGY PRODUCTS
HEAT PUMPS - REFRIGERANT CYCLING

RESIDENTIAL:
COMMERCIAL:

EE-HWS-RCHP-200
EE-HWS-RCHP-200-1

EE-HWS-RCHP-200E
EE-HWS-RCHP-200E-1
(with backup electric heater)

EE-HWS-RCHP-300
EE-HWS-RCHP-300-1

EE-HWS-RCHP-300E
EE-HWS-RCHP-300E-1
(with backup electric heater)

EMERALD HEAT PUMP AND TANK
200L, 300L AND OPTIONAL HEATER

Emerald Energy's hot water heat pumps provide energy-efficient hot water all year round. Our refrigerant cycling heat pumps are available with an optional built-in electric heater to boost hot water supply when needed.

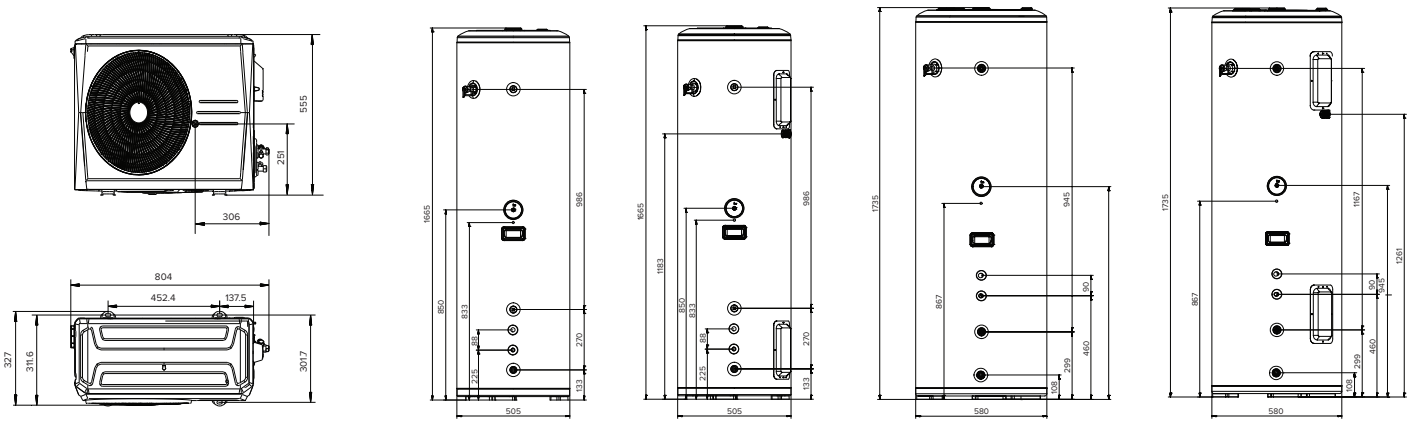
The refrigerant cycling heat pump's heat exchanger is in the water tank resulting in less energy use due to heat loss. It can also operate under lower outdoor temperature conditions.

FEATURES

- Optional built-in electric heater as backup
- Automatic startup and shutdown
- Four-way valve for automatic defrosting
- Anti-Legionella function
- Blue diamond enamel tank

Water Mark
AS 3498 Lic WMK 26654

Australian Standard
AS/NZS27 12:2007
SMK41133
SAI Global



EE-HWS-RCHP-200
EE-HWS-RCHP-200-1
EE-HWS-RCHP-200E
EE-HWS-RCHP-200E-1

EE-HWS-RCHP-300
EE-HWS-RCHP-300-1
EE-HWS-RCHP-300E
EE-HWS-RCHP-300E-1

SMART ENERGY PRODUCTS
HEAT PUMPS - REFRIGERANT CYCLING

AUSTRALIAN ENERGY SAVING SCHEMES

Australian federal, state and territory governments have established energy-efficiency schemes to incentivise the adoption of smart technology solutions to help reduce energy usage and the carbon footprint of businesses and households across the country.

Emerald works closely with government agencies to ensure our products are at the forefront of energy-efficient technology, and aligned to the benchmarks set by the energy-efficiency schemes across Australia. Our hot water heat pumps are approved for installation within the following government schemes.

HIGH SMALL-SCALE TECHNOLOGY CERTIFICATES (STC)

Air Source Heat Pumps qualify for Small-Scale Technology Certificates (STCs) that encourage heat pump water heater installation. STCs can be traded on the Australian market based on their value, which is determined by the efficiency of the unit and the temperature zone in Australia. Each STC represents 1MWh of energy saved over ten years.

PEAK DEMAND REDUCTION SCHEME (PRC)

A Peak Reduction Certificate is a tradeable certificate created when an Accredited Certificate Provider undertakes activities that provide the capacity to reduce electricity usage during peak demand periods.

Heat Pump	Split System	Split System	Split System	Split System
Size	200E	300E	200	300
Model No	EE-HWS-RCHP-200E EE-HWS-RCHP-200E-1	EE-HWS-RCHP-300E EE-HWS-RCHP-300E-1	EE-HWS-RCHP-200 EE-HWS-RCHP-200-1	EE-HWS-RCHP-300 EE-HWS-RCHP-300-1

CERTIFICATE VALUES																				
Residential Certificates	**Z1**	**Z2**	**Z3**	**Z4**	**Z5**	**Z1**	**Z2**	**Z3**	**Z4**	**Z5**	**Z1**	**Z2**	**Z3**	**Z4**	**Z5**	**Z1**	**Z2**	**Z3**	**Z4**	**Z5**
STCs	22*	22*	26*	28*	28*	21*	21*	25*	28*	27*	22*	22*	26*	28*	28*	21*	21*	25*	28*	27*
ESCs (D17)			46.17		44.89			45.25		43.57			46.17		44.89			45.25		43.57
VEECs (1D)				20	20				19	19				20	20				19	19

Commercial Certificates (-1)	**Z1**	**Z2**	**Z3**	**Z4**	**Z5**	**Z1**	**Z2**	**Z3**	**Z4**	**Z5**	**Z1**	**Z2**	**Z3**	**Z4**	**Z5**	**Z1**	**Z2**	**Z3**	**Z4**	**Z5**
STCs	21*	21*	25*	28*	28*	20*	20*	24*	26*	26*	21*	21*	25*	28*	28*	20*	20*	24*	26*	26*
ESCs (F16)			128.47		91.84			118.88		82.30			128.47		91.84			118.88		82.30
VEECs (44B)				59	49				53	44				59	49				53	44

*All certificates have been calculated for the dates between the 1st Feb 2023 – 31st Jan 2024

*VEEC's & ESC's Commercial certificates have been calculated when installing a new water tank and replacing an electric resistance boiler/ heater of a 3.6 kW (200L) and 3.1 kW (300L) capacity or greater in a metro area.
For residential installations, the existing system size is not included in the calculations

*STC certificates have been submitted to the CER and are waiting for final approval

SMART ENERGY PRODUCTS
HEAT PUMPS - REFRIGERANT CYCLING

BLUE DIAMOND ENAMEL TANK

Blue Diamond enamel technology ensures the surface is clean and smooth and reduces dirt from adhering - keeping the tank cleaner and more hygienic over time.

ANTI-LEGIONELLA FUNCTION

Disinfection temperature 60~75°C

Unit without electric heater:
Maximum disinfection temperature 65°C

Unit with electric heater:
Maximum disinfection temperature 75°C

Two disinfection modes available:
Periodicity automatically disinfect
Manually disinfect

VENTILATION GUIDELINES:

Ideally, the heat pump should be installed outdoors. However, if it needs to be installed indoors, there are some possible issues to consider, and preventive measures should be taken.

One potential issue with indoor installations is the risk of air recirculation. This can cause the temperature of the air in the confined space to gradually decrease, which can lead to a loss of efficiency and possible failure of the heat pump. It's important to monitor the air temperature in the space to make sure it doesn't drop below 5°C. Sufficient ventilation should be maintained over the lifetime of the heat pump to ensure its proper functioning.

The below recommendations will help to prevent the drop in air temperature:

- Indoor areas with an air volume greater than 25m^3 are suitable for indoor installations
- Areas smaller than 25m^3 require cross ventilation. Cross ventilation can be achieved naturally or mechanically
- Natural ventilation is achieved if there are suitably sized openings on opposite ends of the enclosure providing cross ventilation
- If mechanical ventilation is provided via a supply or extract fan, then the minimum volume of air required is 1000 m^3/h (278 L/s)
- For mechanically ventilated areas, a make-up air path is required. This can be in the form of grilles, undercut doors, open doors, open windows etc
- To achieve cross ventilation the location of the make-up air path should be on the opposite side of the enclosure to the fan

SPLIT SYSTEM DESIGN

Due to the split system design, the water tank and outer unit are separate units and connect by two refrigerant pipes.

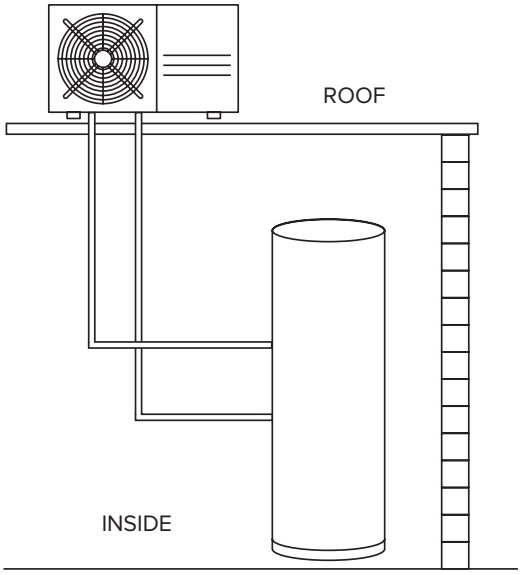
The standard refrigerant piping length supplied is 2.5m. This will suit most applications, particularly residential installations.

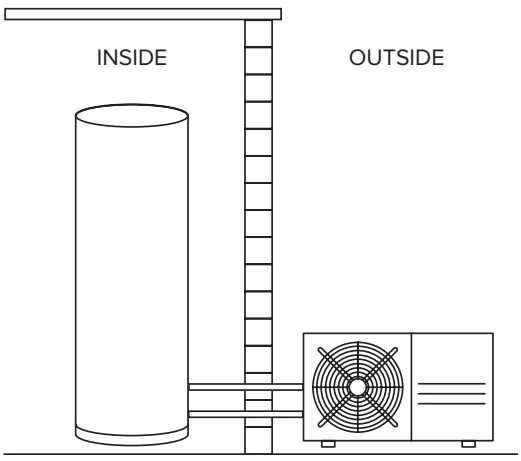
For commercial applications the water tank and outer unit may require greater distances apart. The refrigerant piping lengths can be increased. See below requirments:

Maximum piping length: 20m

Maximum piping difference in height: 10m

If the piping length were less than 10m, no additional refrigerant charge is required. If the piping length exceeds 10m, then an additional refrigerant charge of 20g/m is required.





SMART ENERGY PRODUCTS
HEAT PUMPS - REFRIGERANT CYCLING

SPECIFICATIONS

	MODEL NUMBER			EE-HWS-RCHP-200 EE-HWS-RCHP-200-1	EE-HWS-RCHP-200E EE-HWS-RCHP-200E-1	EE-HWS-RCHP-300 EE-HWS-RCHP-300-1	EE-HWS-RCHP-300E EE-HWS-RCHP-300E-1
GENERAL	Ambient temperature		°C	-15~46			
	Leaving water temperature		°C	20~63			
	Heating	Capacity[1]	W	2600			
		Input	W	1000			
	Hot water yield		m^3/h	0.044[1] / 0.056[2]			
	Refrigerant piping	Refrigerant piping	mm(inch)	Ø6.35 / Ø1/4'			
		Gas side	mm(inch)	Ø9.52 / Ø3/8'			
		Max. height difference	m	10			
		Max. refrigerant pipe length	m	20			
	Design pressure		MPa	3			
OUTDOOR UNIT	Outdoor unit power supply		V/N/Hz	220-240/1/50			
	Max. current		A	4.4	13.5	4.4	13.5
	Compressor		Type	Rotary			
	Fan	Type		AC			
		Air flow (H/L)	m^3/h	1250/769			
	Air side heat exchanger		Type	Hydraulic aluminum fin + Inner grooved copper tube			
	Throttle		Type	Electric expansion valve			
	Outdoor sound pressure level		$dB_{(A)}$	54			
	Dimension	Unit dimension (L*W*H)	mm	804*327*555			
		Packing dimension (L*W*H)	mm	845*390*610			
		Net weight	kg	29			
		Gross weight	kg	32			
	Refrigerant	Type		R134a			
		Charged volume	g	900			
INDOOR UNIT	Tank volume		L	200	200	300	300
	Electric heater	Capacity	kW	/	2.1	/	2.1
		Power supply	V/N/Hz	220-240/1/50	220-240/1/50	220-240/1/50	220-240/1/50
	Dimension	Unit dimension(W*D*H)	mm	505*505*1665	505*505*1665	580*580*1735	580*580*1735
		Packing dimension(W*D*H)	mm	1775*635*590	1775*635*590	1835*690*670	1835*690*670
		Net weight	kg	73	73	96	96
		Gross weight	kg	83	83	108	108

1. Ambient temperature 19/15°C(DB/WB), Initial water temperature 9°C, Terminative water temp. 60°C.