



WATERWARE

SOLUTIONS



NETZERO
HOT WATER SYSTEMS

We're Waterware

Since 1989, our passion has been delivering quality in all things plumbing, central heating and cooling, and bathroomware.

Waterware is proudly New Zealand owned and operated. From the outset we've been supporting the market with technical and design knowledge, helping deliver solutions that are functional, intuitive and beautiful.

We're working hard to make your life easier. Waterware are innovators setting the pace in New Zealand with hydraulic radiant heating and cooling technology, high-performance plumbing fittings, and on-trend bathroomware.

Our commitment

We're on a mission to make lives easier with plumbing, central heating and cooling, and bathroomware solutions that look great and perform their best.

Waterware is constantly evolving to lead the market while reflecting our values of integrity, bold thinking, and genuine partnerships with everyone we interact with. We want to create environments of success for everyone involved.

We take special pride in our pre- and post-sales service experience, and our impressive network of business relationships around the world. Over the years, we've connected with thousands of like-minded partners to help us source products that suit our local market and perform better than any others.

Our products are supported by our extensive range of spare parts, and our in-house Installer Training and Warranty Assurance programmes, so you can rest assured that you'll be taken care of.

What we do

Bathroom

Hand-picked from across the globe, our bathroomware combines impeccable design and unmatched quality for looks that are sure to wow.

We've partnered with our factories to design products that Kiwis are proud to use, as well as introducing new materials and technologies to suit the local market.

Radiant Heating & Cooling

Ditch noisy blasts of hot or frigid air, drafts, and dust. Waterware are leaders in radiant heating and cooling powered by hydronic solutions, with three technologies available for superior comfort in commercial and residential applications.



Plumbing

If you want clever designs, greater aesthetics, more sustainable material choices, and manufacturing processes that are considerate to our environment, then we have the products and solutions for you.

The Solutions Suite

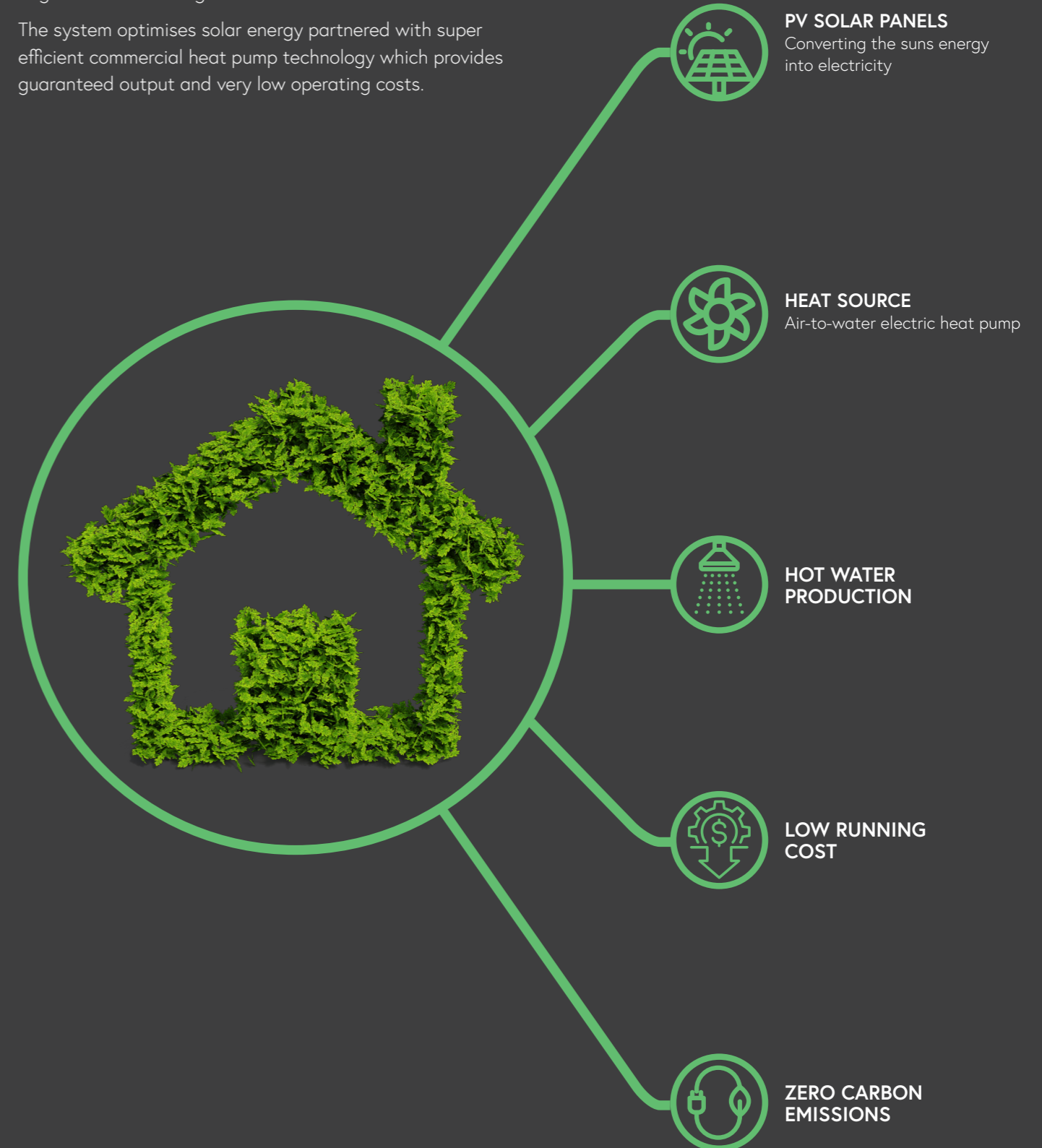
In engineering, a bigger hammer would do it – but smarter problem solving does it better. Talk to us about innovation, and how we can solve your bathroom, plumbing, heating, and cooling issues with customised solutions.

What is Net Zero

Waterware offers a centralised combination solar and heat pump hot water package for any commercial or domestic project.

Net Zero harvests free solar energy and distributes this to high temperature heat pumps which are combined with large hot water storage tanks.

The system optimises solar energy partnered with super efficient commercial heat pump technology which provides guaranteed output and very low operating costs.



Carbon Neutral Operation

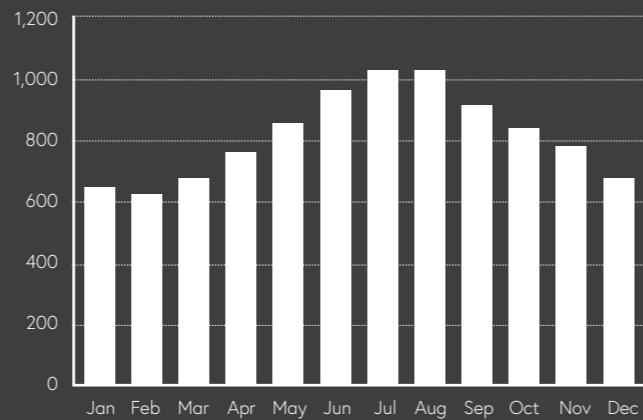
The Net Zero concept meets the need of carbon neutral operation with extremely low running cost hot water production. It is an engineered solution which specifies heat pump technology with PV solar to create a well-balanced integration between these important renewable technologies. The key to having a well-balanced system is to create a model for the energy requirement and production, adjusting the specification to create an energy balance where the total energy required to power the heat pump is produced the PV system annually. With moving set point technology, the hot water storage is used as a buffer of energy, automatically increasing the stored temperature when the PV system is producing power and reducing stored temperature to coast when the PV is not producing. The advantage of the Net Zero system over solar thermal systems is the elimination of frost issues, elimination of stagnation issues, and the consistent production of hot water regardless of solar input. Unlike solar thermal excess, PV production is soaked up by the building creating an electricity offset.

Power requirement model

The power required to drive the heat pump varies both regionally and annually with colder air temperature reducing the COP of the appliance, and colder ground water requiring more energy to raise the water temperature up to usable levels. Niwa climate data is used to create the inputs used to create the model.

Key inputs:

- Total hot water requirement
- Monthly average air temperature
- Monthly average ground temperature

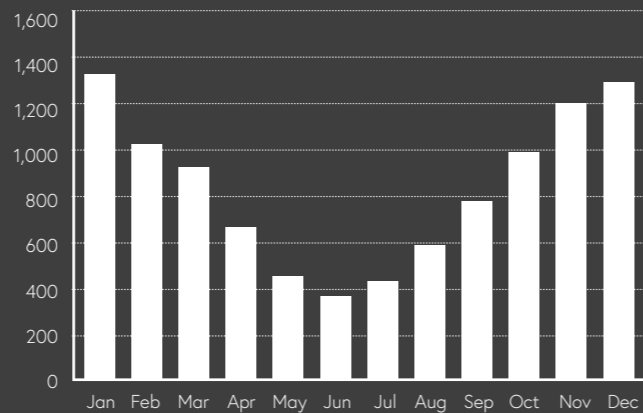


Power production model

The performance of the PV system driven by the total number of sunshine hours and the number of PV panels. Niwa mean daily global radiation data is used to calculate the monthly and annual production which is compared to the power requirement model.

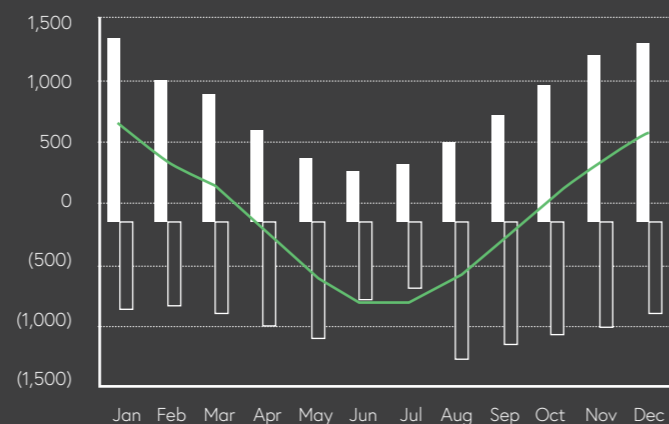
Key inputs:

- Total power requirement
- Monthly mean daily global radiation



Energy balance

By matching the inverter to the peak load requirement of the heat pump and adjusting the number of PV panels to produce more kW annually than consumed then energy balance can be achieved. This results in carbon neutral operation and extremely low running costs.



The Process

The first step is generally a detailed discussion with the project owners and the design team, including the architects and hydraulic engineers to establish the size and scope of the project, and the key performance requirements for the project.

Waterware would take this brief and develop a system design including all the necessary system components to deliver the hot water production output necessary, together with the operational metrics that are being required.

The system design will include all the critical information to assist in the plant room design and layout.

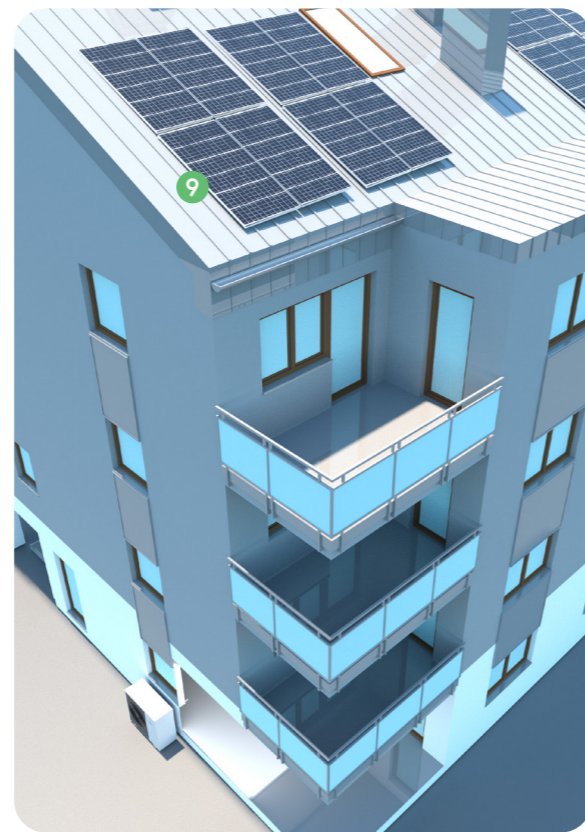
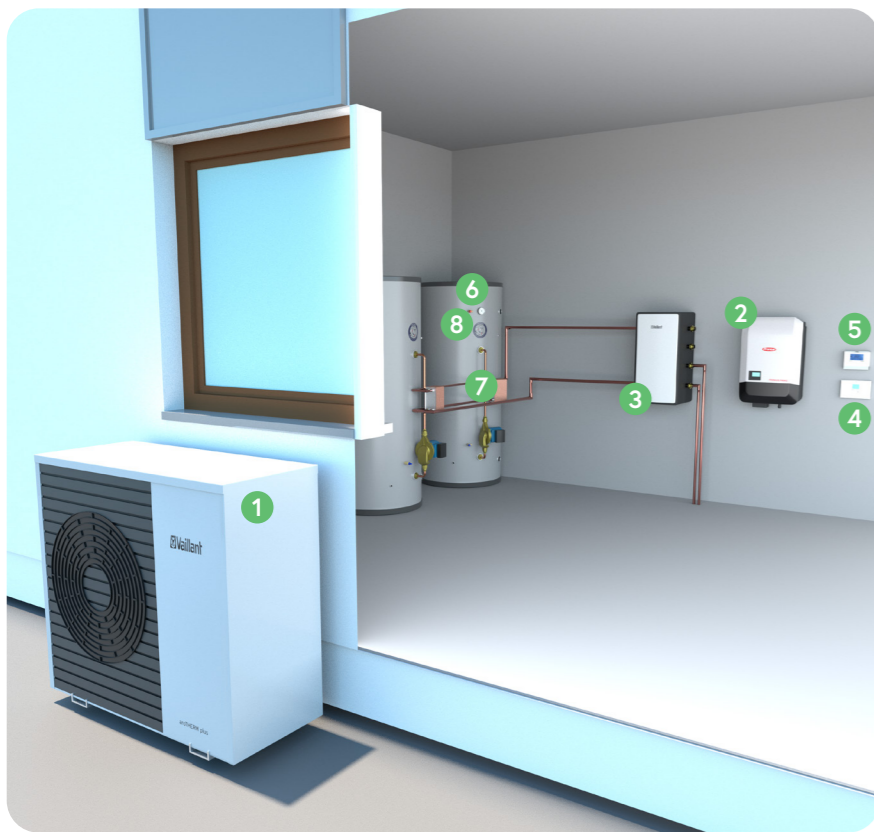
Waterware, in conjunction with commercial plumbers, can endeavor to provide (where requested) indicative pricing for the system supply and installation to assist in the project budgeting, and to provide a turn-key package.

Waterware's technical team will work closely with the commercial plumbing contractors to assist and support the installation and commissioning of the Net Zero system.

Waterware's ability to provide a fully integrated solution, including all the system components, enables us to provide guarantees for the products, their operation, and performance of the system.

Waterware Net Zero is a system solution which is designed to meet a range of identified needs, and deliver specific outcomes for a project owner in collaboration with their project partners.

Net Zero is a turn-key centralized commercial and domestic hot water system which operates on sustainable and renewable energy, and generates low carbon emissions with extremely low running costs.



Net Zero Commercial: System Description

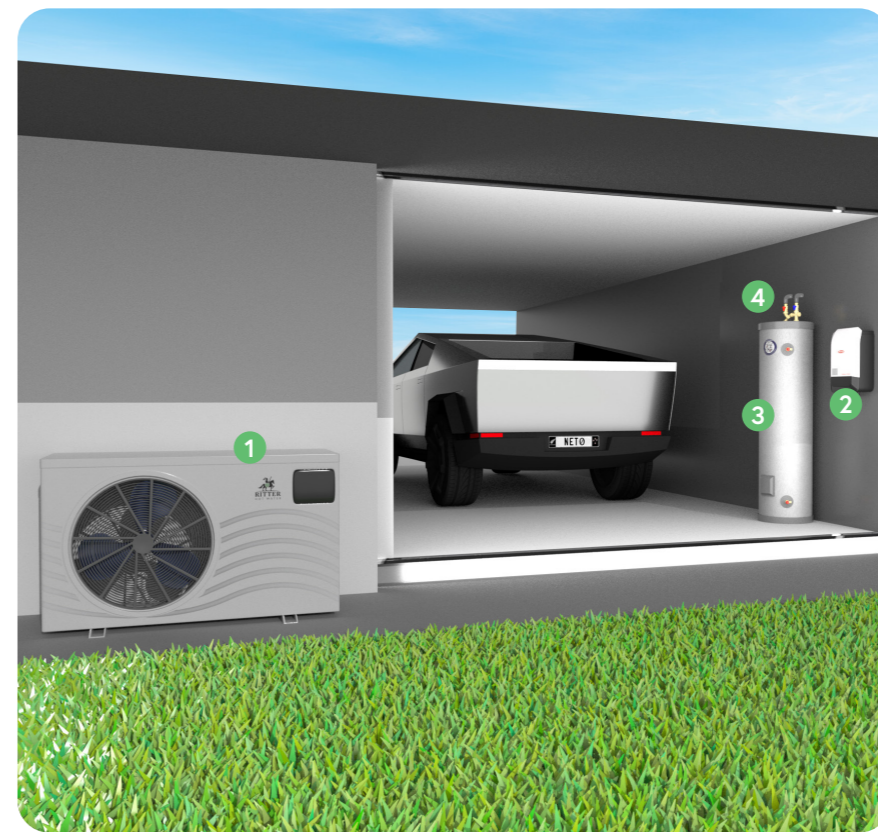
An aroTHERM+ air to water heat pump is connected to a buffer which recovers the hot water cylinders via the habanero HX recovery system. The heat pump is supported by a PV system which is designed to 100% offset the power required to drive the system annually. The control system allows the heat pumps to boost the water temperature in the tanks when the PV system is producing power and coast when the system is using grid energy. The indirect nature of the heat pump and heat exchangers extends the life of the appliance and eliminates lime scale forming inside the heat pump itself.

Major Components:

1. aroTHERM+ 16kW air to water heat pump
2. Fronius Inverter
3. aroTHERM+ buffer tank
4. aroTHERM+ hydrobox controller
5. VRC 700 cascade controller
6. ProTank commercial series
7. ProTank Habanero recovery system
8. Caleffi safety & temperature control valves
9. PV Solar Panels

Technical Specifications:

Maximum power	kW	9kW to 96kW
Maximum storage	litres	500L to 4,000L
Inverter	kW	Fronius Primo Int Grid Inverter
PV array	Panels	330w REC Twinpeak 2 Mono series solar panels
Cold water expansion setting	bar	8 or 10 bar
Over pressure setting	bar	10 or 12 bar
Maximum supply pressure	kPa	650kPa or 800kPa
First hour production	Litres	700L to 6,000L to @ 60°C in the first hour
Recovery time	minutes	Typically 180mins from 45°C to 65°C
Output options	Direct supply	60-65°C temperature range, 0 to 800 L/Min flow range Ringmain ready, Point of use tempering required
	Caleffi Thermostatic	40-55°C temperature range, 30 to 275 L/Min flow range Ringmain ready, UV sterilization required
	Caleffi Electronic	40-55°C temperature range, 30 to 800 L/Min flow range Ringmain ready, UV sterilization required Data logging and BMS integration standard



Net Zero Domestic: System Description

A Ritter hot water heat pump is connected directly to a ProTank+ for a high recovery hot water system. The heat pump is supported by a PV system which is designed to 100% offset the power required to drive the system annually. The control system allows the heat pumps to boost the water temperature in the tanks when the PV system is producing power and coast when the system is using grid energy. The high recovery heat pump allows the user to reduce the required storage volume to meet the hot water needs, reducing total heat losses and giving more space in the hot water cylinder cupboard.

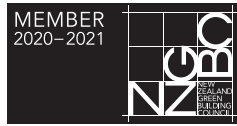
Major Components:

1. Ritter hot water heat pump
2. Fronius Inverter
3. ProTank+
4. Caleffi safety & temperature control valves
5. PV Solar Panels

Technical Specifications:

Maximum power	kW	7.5kW
Maximum storage	litres	90L, 135L, 185L or 275L
Inverter	kW	Fronius Primo Int Grid Inverter
PV array	Panels	330w REC Twinpeak 2 Mono series solar panels
Cold water expansion setting	bar	6 bar
Over pressure setting	bar	7 bar
Maximum supply pressure	kPa	450kPa
First hour production	Litres	310L to 470L to @ 60°C in the first hour
Recovery time	minutes	25mins to 51mins from 45°C to 65°C
Output options	Direct supply	Caleffi Thermostatic 40-55°C temperature range, 30 to 275 L/Min flow range Ringmain ready, UV sterilization required
	Caleffi Thermostatic	40-55°C temperature range, 30 to 250 L/Min flow range Ringmain ready, UV sterilization required
	Caleffi Electronic	40-55°C temperature range, 30 to 250 L/Min flow range Ringmain ready, UV sterilization required Data logging and BMS integration standard

Proud members of



WATERWARE



An air to water heatpump harvests free energy from the ambient environment - it consumes 1 unit of energy to harvest up to 4 i.e. 400% efficient. The unit consumed comes from conventional electricity and over 80% of NZ's electricity comes from renewable technologies like hydro, solar and wind.

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