



**SANDEN**

Delivering Excellence

**Eco**  
Eco system of Sanden

# Owner's manual

**Sanden Heat Pump Water Heater with Natural Refrigerant (CO<sub>2</sub>)**

**GAUS-315EQTA**

**Heat Pump Unit GAU-A45HPA**

**Tank Unit GAU-315EQTA**



Heat Pump Unit  
GAU-A45HPA



Tank Unit  
GAU-315EQTA

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### PATENTS

This water heater may be protected by one or more patents or registered designs in the name of Sanden Australia Pty. Ltd.

### TRADE MARKS

® Registered trademark of Sanden Australia Pty. Ltd.

Note: Every care has been taken to ensure accuracy in preparation of this publication. No liability can be accepted for any consequences that may arise as a result of its application.

## Introduction

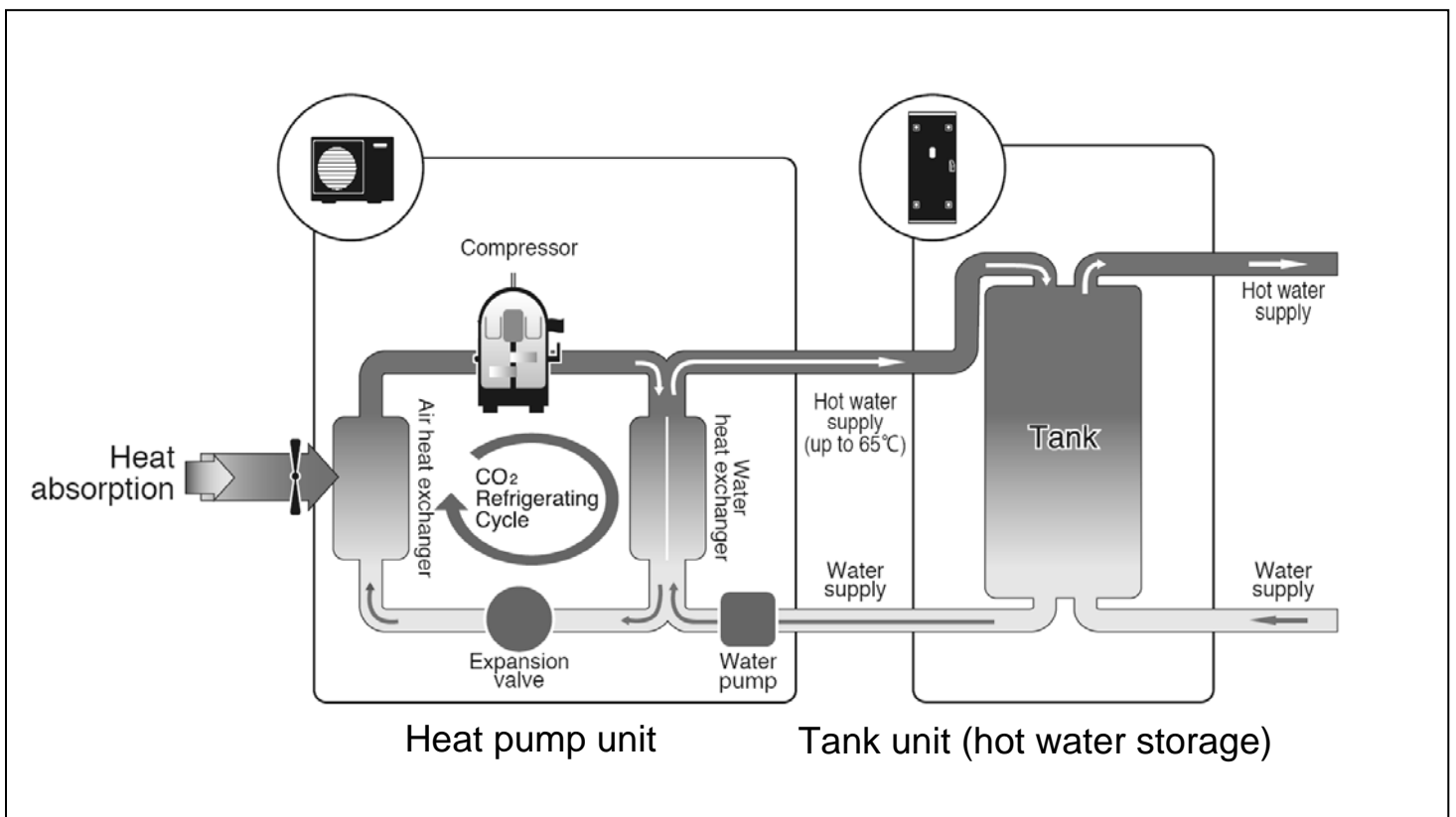
The Sanden Heat Pump Water Heater System has been designed using the latest refrigeration technology to remove the heat from the air to heat water. The refrigerant we use is CO<sub>2</sub> which does not contribute to global warming so it allows us to help keep a clean healthy earth for future generations.

We have also considered the power requirement. By using CO<sub>2</sub> as the refrigerant we have produced one of the most energy efficient units currently available. It's even more efficient when connected to off-peak power<sup>1</sup> and the noise level is so low it will operate unobtrusively throughout the night.

## How it works

The Heat Pump Water Heater System heats water by transferring the heat from the surrounding air to the water using a refrigerant. The refrigerant is heated by a heat exchanger that absorbs heat from the surrounding air.

### Heat Pump Water Heater System





Note <sup>1</sup> operating conditions may vary depending on the type of off-peak tariff that is available in your area. The unit must have a minimum of 5 hours continuous power available

# Safety precautions







Please ensure you fully observe the precautions.

The following instructions need to be fully followed to prevent any harm to users and others or damage to your property.

■ The extent of the possible harm or damage caused by misuse of the product falls into the following classifications.


 <b>Warning</b>	The column with this classification indicates “the extent of harm that includes the possibility of death or serious injury”.
 <b>Caution</b>	The column with this classification indicates “the extent of harm/damage that includes the possibility of injury or damage to property”.

■ The type of content to be observed can be explained with the following pictorial classifications.


	Indicates content requiring “attention”.
  	Indicates content that is prohibited.
 	Indicates content with “instructions” that need to be fully followed.

## Warning

**Do not touch the faucet while hot water is being supplied**




Do not touch

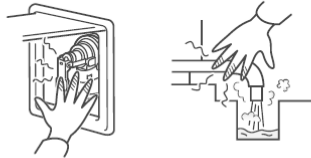


Could result in being burnt by hot water.

**Do not touch the relief valve, drainage pipe, drain outlet or drain elbow when inspecting the relief valve or while draining hot water.**





Do not touch




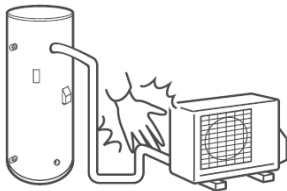
Could result in being burnt by hot water.

**Check the water temperature before supplying any hot water or taking a shower.**

Could result in being burnt.

**Do not touch the heat pump unit pipes or hot-water supply pipes.**

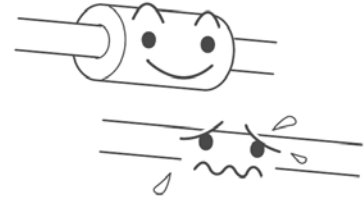
Could result in being burnt.

# Warning

Do not use any damaged, altered, or bundled power cords.



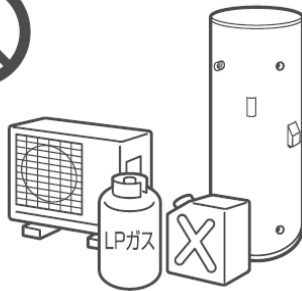
Verify that the piping has all been insulated.



Any of the pipes freezing up and getting damaged could result in scalding or water leaking.

· Please contact the dealer on insulating the pipes.

Ensure the product is removed from any gas containers, sources of fire and flammable substances.

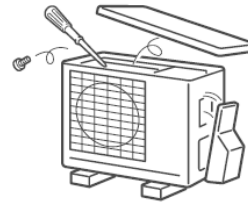


Sparks from the electrical parts of the product could result in fire.

Do not disassemble, repair or alter the product in any way.



Do not disassemble



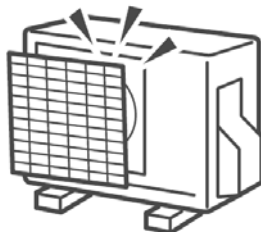
Could result in electric shock or fire.

· Contact the dealer for repair.

Do not open the front board of the hot water storage unit or the heat pump unit cover.



Do not disassemble

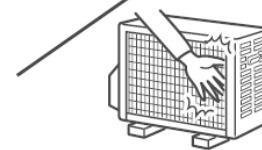


Could result in electric shock.

Do not poke your fingers or a stick into the air inlet (fins)/air outlet of the heat pump unit.



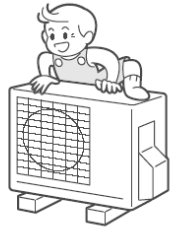
Attention – Rotating object



Could result in injury.

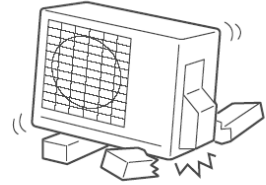
# ⚠ Caution

Do not climb or put anything on top of the unit. Do not apply any force to the piping.



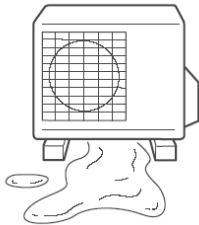
Could result in injuries from a fall or being scalded.

Do not use the heat pump unit if the installation blocks have been damaged.



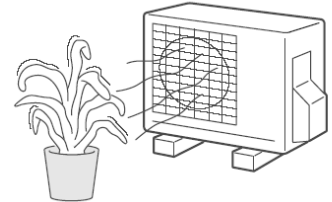
Damaged installation blocks could result in the heat pump unit falling over and causing injury.

Do not put anything susceptible to humidity under the heat pump unit.



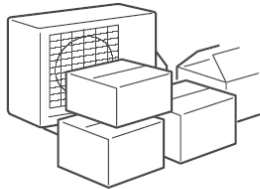
Water could drain out. In addition, condensation could drip from the pipe connections.

Ensure no animal or plant life is placed directly in front of where air is blown from the unit.



Could result in harm to animal and plant life.

Do not block the air inlet and outlet.



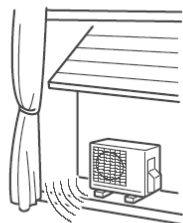
Could harmfully influence performance and lead to failure.

Remove any snow from the units after snowfalls.



Snow building up around the heat pump unit and hot water storage tank unit could result in malfunction and failure.

Select an installation place with consideration given to neighbors.



Please select a place where noise and vibration while operating will not bother your neighbors.

## Check the installation conditions of the unit.

Installation of the unit in the following places could result in accidents or failure and the performance of the unit not being guaranteed.

- Anywhere the lowest temperature reached is under minus 10 degrees centigrade
- Indoors (Applies only to the heat pump unit)
- Anywhere not completely flat, unstable or where drainage is difficult
- Ensure not to put anything around the heat pump unit. Could result in poor performance and unexpected problems. In the winter in particular please pay attention to any snow coverage.

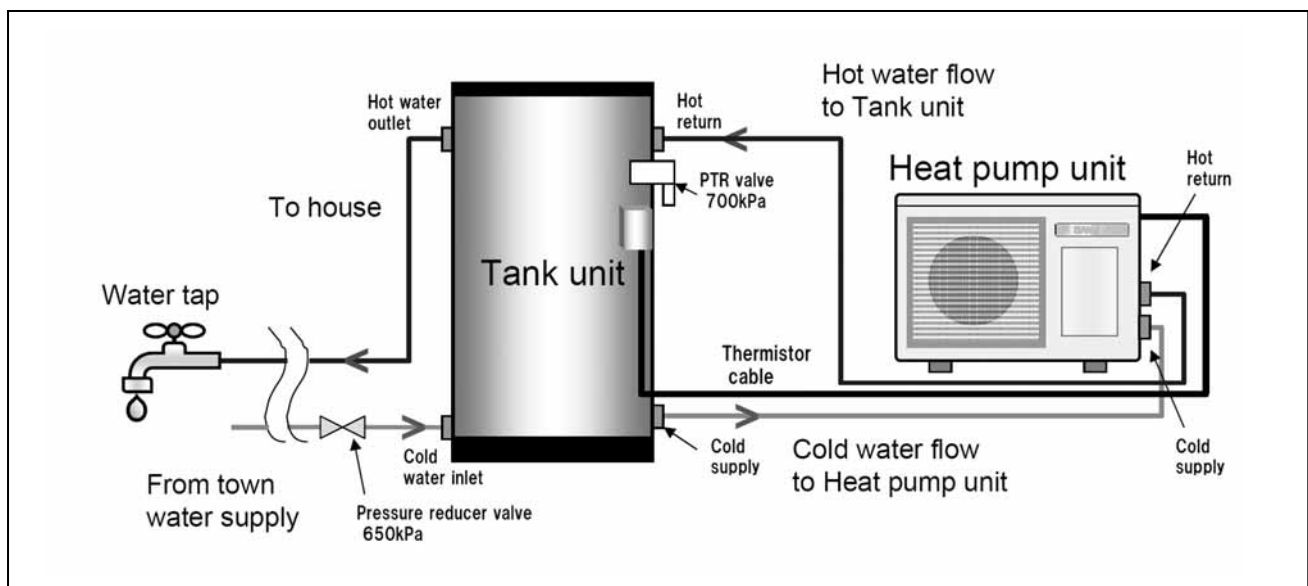
## Installation details

This Heat Pump Water Heater System must be installed by a licensed person in consideration of the following standards and regulations:

- AS/NZS3500 National plumbing and drainage code hot water supply systems – acceptable solutions
- HB 263-2004 Heated water systems plumbing industry commission
- AS/NZS 3000 Electrical installations (known as the Australian/New Zealand wiring rules)
- Notice to Victorian customers from the Victorian Plumbing Industry Commission. The *Victorian Building Act 1993* requires that this Heat Pump Water Heater System must be installed by a licensed person. Only a licensed person will provide a Compliance Certificate, showing that the work complies with all the relevant standards. Only a licensed person will have insurance protecting their workmanship for six years.
- The unit has been specifically designed for domestic hot water heating and is not suitable for any other purpose.
- The unit is designed to operate when connected to the town water supply with a maximum operating pressure of 650 kPa. To ensure the mains pressure does not exceed this, a pressure-limiting device that complies with AS1357 must be connected to the town water supply line.
- This system delivers hot water exceeding 50°C. Reference should be made to AS/NZ3500 and/or local regulations relating to the need for temperature tempering devices.
- The unit must be stored and transported in an upright position. Failure to do so may render the unit faulty. Such failure is not covered under any warranty agreements.

Failure to comply with the above conditions will void the warranty.

## Typical installation layout



## Trouble shooting guide

If you faced to a problem in a use of our heat pump water heater system, please check the following things prior to calling for a support.

Status	Considerable Causes	Action to Take
No hot water comes out of water tap  Temperature of hot water is too low	Small or no hot water is left in the storage tank.	<ul style="list-style-type: none"> <li>- Stop using hot water and wait for about 1 hour</li> <li>- Consider a change of the electricity supply off-peak mode (Length of power-supply hours may be too short for the water heating cycle to cover the hot water consumption)</li> </ul>
	Air removing procedure from the heat pump system may be insufficient.	- Open the water drain plugs on the Heat Pump Unit to remove air from water circuit. (Be careful for burning)
	Filter on cold inlet connector may be blocked.	- Check the filter and remove if there is any blockage
	Water flow speed may be dropped due to the heat pump piping bend, blockage or crush.	- Check for any piping bend or crush and remove if any
	Pipes may be frozen.	- If frozen area is found on the piping, melt the ice on the pipe and provide a heat insulation
	Stop valve is closed.	- Open the valve
	Air absorption is not sufficient due to a blockage on the evaporator.	-Remove the object being blocking the air flow through the evaporator (e.g. fallen leaves, grass, snow, etc.)

For those problems not listed in the list above, an inspection provided by a skilled engineer is required. Please contact the distributor.

### Caution:

Do not shut the electricity supplied to the heat pump system even if you go away from home and do not use hot water for a long while.

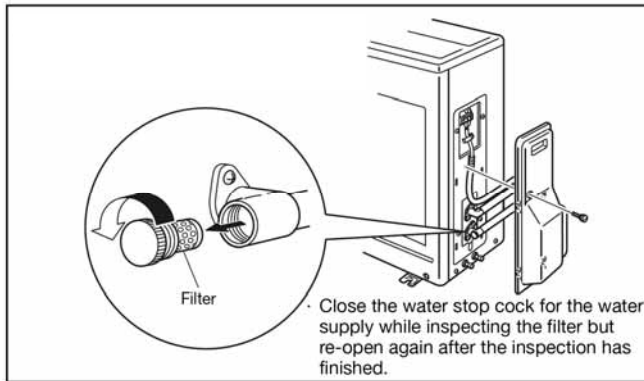
If the system is equipped with freeze protect heaters, also do not shut the power supply to the heaters.

Failure to do so may cause a crack on the pipes due to the pipes getting frozen.



## Cleaning the inlet filter

1. Remove end cover from the Heating Unit to expose inlet/outlet connections
2. Turn off inlet water (tap to inlet or at main supply)
3. Remove filter plug by unscrewing knurled knob anti-clockwise
4. Clean filter by washing (do not pry anything loose)
5. Replace filter plug (insert & screw clockwise)
6. Turn inlet water on & check to ensure no leak around filter
7. Replace the inside cover and the end cover

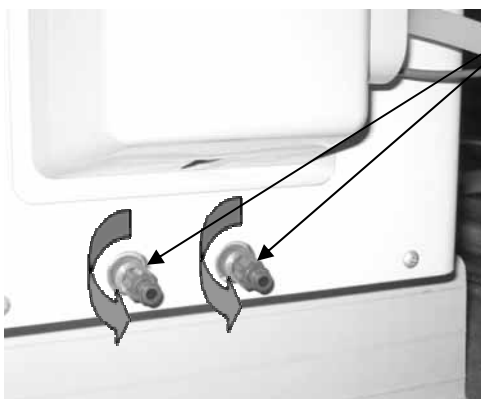


**Do NOT attempt to open the system for any reason; such action will nullify the warranty.**

If any other fault occurs or is recognised, you must contact your supplier for a service call and repair.

## Removing air from the system

Air Removing Process



Water drain plugs

Open the water drain plugs (2 places) on the Heat Pump Unit.

Close the plugs after no air is confirmed in the water.

Supply the power to the Heat Pump Unit and leave the water tap open for 3 minutes.

Close the tap after no air is confirmed in the water.

Caution

Hot water may come out. Be careful not to get the hands burnt.

## Electrical connections

- Electrical installation should be done only by a licensed electrician who carries out the work according to the relevant regulations for electrical safety and wiring.
- Follow the wiring rules for the breaker rating and the thickness of the electrical wiring.
- Verify that the tank unit is full of water and the water stop cocks are open before turning on the power.

## System operation outline continuous power

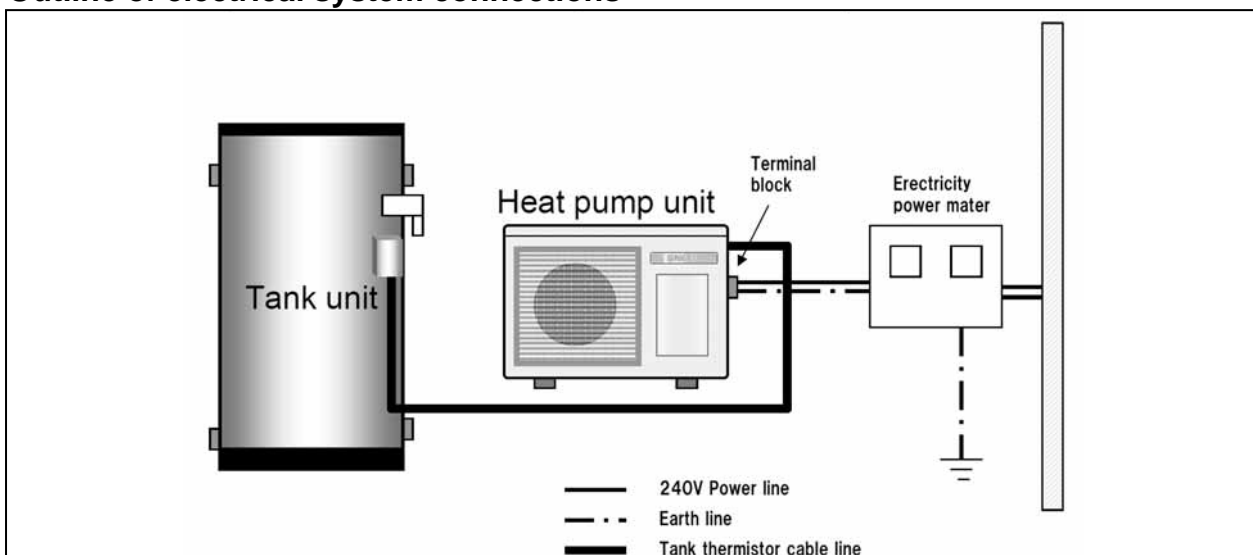
- The system runs its water heating cycle once a day to fill up the storage tank unit with heated water.
- If the block out time function is selected ( setting is covered in page 14 ) the unit will not operate during the block out times – this function is typically used on installations that have time of use electricity tariffs
- The water heating cycle operation starts automatically when the residual hot water in the tank unit becomes less than 150 litres.
- The system will not run if the electrical power supply is cut off (i.e. if it is connected to off-peak power). However, the system will automatically start operation, once the electricity becomes available.

## System operation if connected to off-peak electricity

- There are no special settings for the off-peak connection. The system will run once the power becomes available and the temperature in the tank drops below the set point of the tank thermistor. If connecting the unit to off-peak, ensure that the off-peak tariff provides a minimum of 5 hours continuous power, as it can take at least four hours to fill the tank unit with hot water if the ambient temperature is lower than 10°C, this can be longer.
- If the unit is connected to off-peak and consumption has been higher than normal hot water might not be available until the next power supply cycle.
- Daily frequency and amount of hot water consumption may also affect the duration of the heating cycle operation.

**Select the electrical supply mode that best suits the customer's hot water consumption. The type of off-peak connection may need to be changed if hot water supply is not maintained as required.**

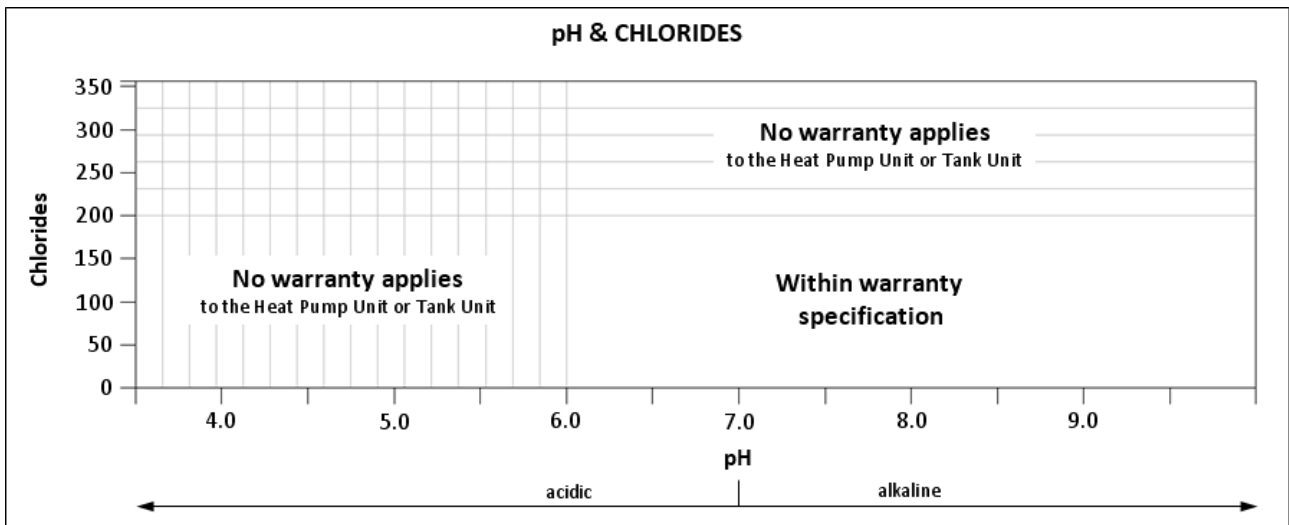
## Outline of electrical system connections



## Water supply quality

### Chloride and pH

In high chloride water supply areas, the water can corrode some parts and cause them to fail. Where the chloride level exceeds 250 mg/litre warranty does not apply to the heat pump unit and tank unit. pH is a measure of whether the water is alkaline or acid. In an acidic water supply, the water can attack the parts and cause them to fail. No warranty applies to the heat pump unit and tank unit where the pH is less than 6.0. The water supply from a rainwater tank unit in a metropolitan area is likely to be corrosive due to the dissolution of atmospheric contaminants. Water with a pH less than 6.0 may be treated to raise the pH. It is recommended that an analysis of the water from a rainwater tank be conducted before connecting this type of water supply to the system.

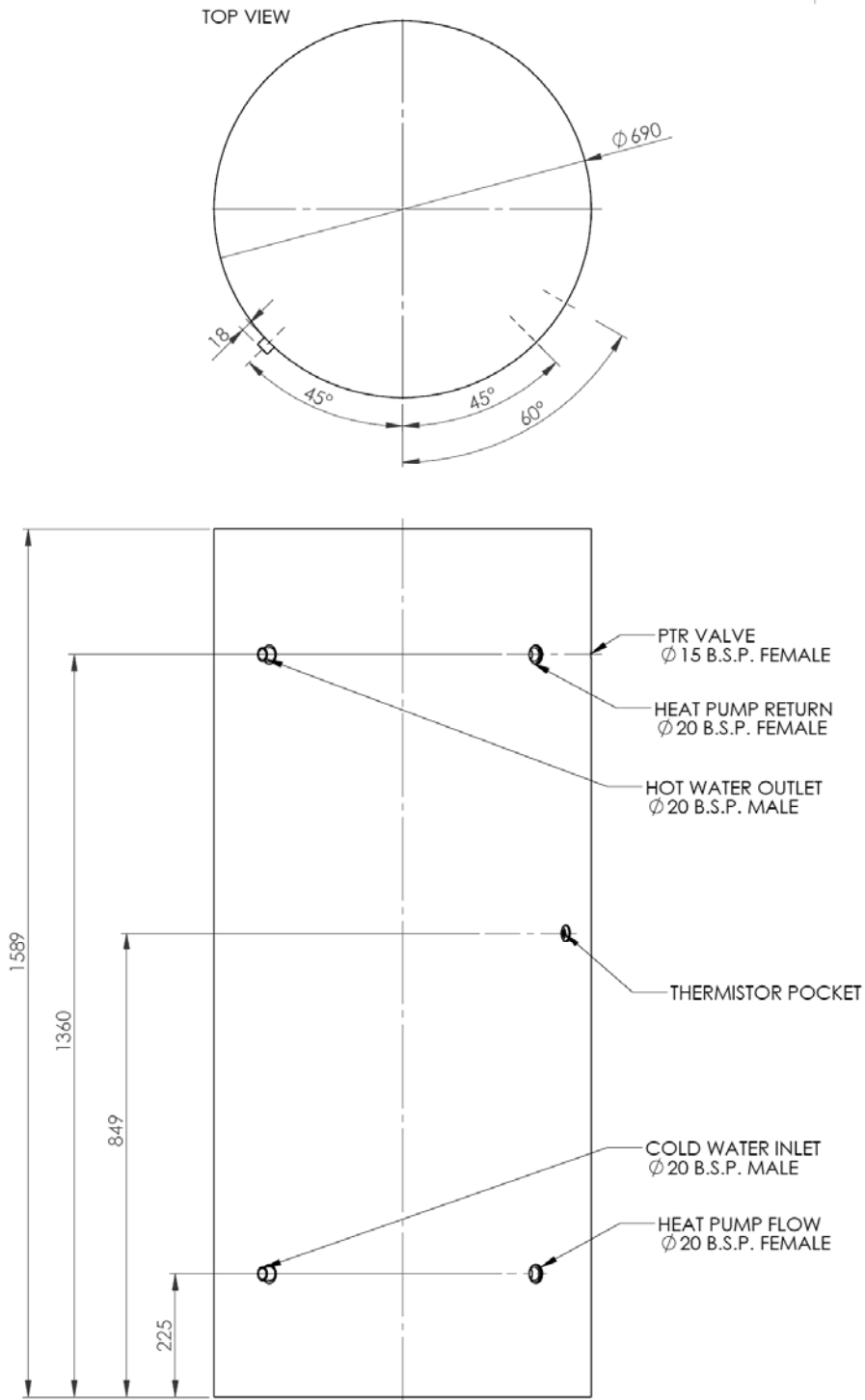


### Change of water supply

Changing, or alternating, from one water supply to another can have a detrimental effect on the operation and/or life expectation of the water tank unit cylinder, PTR valve, water heating circulation and the heat exchanger in the system. Where there is a changeover from one water supply to another, for example, a rainwater tank supply, desalinated water supply, public reticulated water supply or water brought in from another supply, then water chemistry information should be sought from the supplier or the water should be tested to ensure it meets the warranty requirements in this installation manual.

# Dimensions and Technical Data

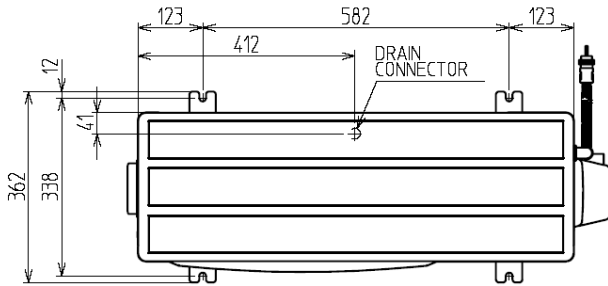
## Hot Water Storage Tank unit GAU-315EQTA



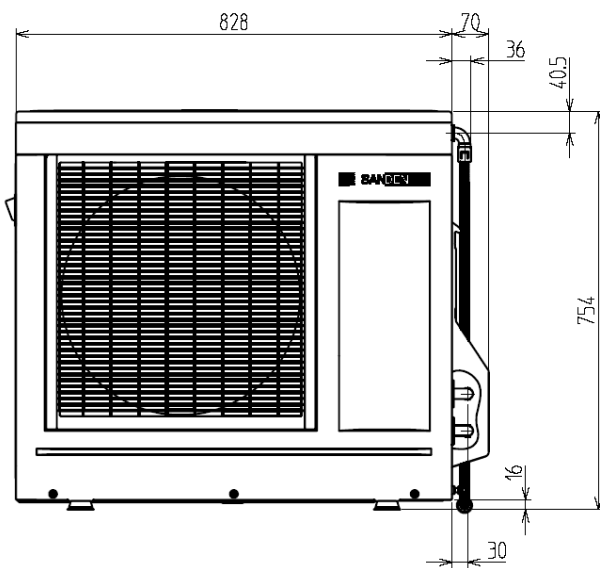
Storage Capacity	315 litres
Product Weight	89.4 kg
Design Pressure	700 kPa
Storage Tank Material	Stainless Steel
Outside Casing	Colour Coated Zinc Steel

# Heat Pump Unit GAU-A45HPA

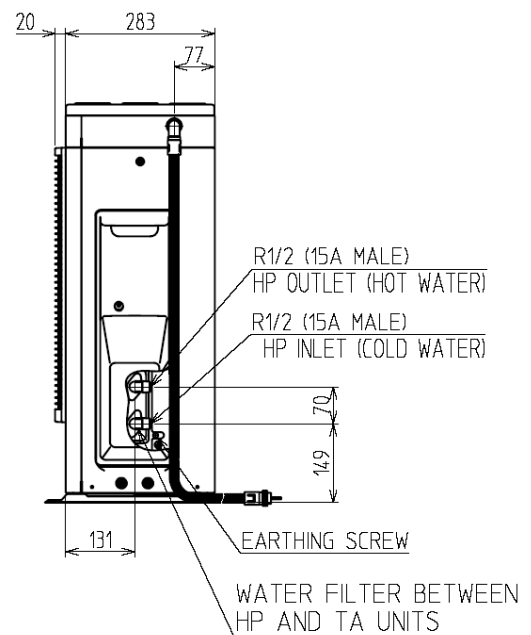
[TOP VIEW]



[FRONT VIEW]



[SIDE VIEW]



Refrigerant Type	R744(CO <sub>2</sub> )
Product Weight	56 kg
Thermal Capacity	4.5 kw *1
Power Consumption	1.0 kw *1
COP	4.5 *1
Heated Water Temp.	65 °C

\*1 Ambient Temp. (Dry / Wet) 16°C / 17°C, Inlet Water Temp. 17°C, Outlet Water Temp. 65°C

# Warranty Policy

## **Warranty Conditions**

1. The Sanden Heat Pump Water Heater System must be installed in accordance with the installation instructions supplied with the Heat Pump Water Heater System and in accordance with all relevant statutory and local requirements of the state in which the water heater is installed.
2. Where a failed component or Heat Pump Water Heater System is replaced under warranty, the balance of the original warranty period will remain effective. The replaced part or Heat Pump Water Heater System does not carry a new warranty.
3. Where the Heat Pump Water Heater System is installed outside the boundaries of a metropolitan area as defined by Sanden or further than 25 kilometers from an accredited service agent, the cost of transport, insurance and travelling costs between the nearest accredited service agent's premises and the installed site shall be the owner's responsibility.
4. Where the Heat Pump Water Heater System is installed in a position that does not allow safe, ready access, the cost of accessing the site safely, including the cost of additional materials handling and/or safety equipment, shall be the owner's responsibility.
5. The warranty only applies to the Heat Pump Water Heater System and original or genuine (company) component replacement parts and therefore does not cover any plumbing or electrical parts supplied by the installer and not an integral part of the Heat Pump Water Heater System. Such parts would include pressure limiting valve, isolation valves, non-return valves, electrical switches, pumps or fuses.
6. The Heat Pump Water Heater System must be sized to supply the hot water demand in accordance with the guidelines in the Sanden Heat Pump Water Heater System literature.

## **Warranty Exclusions**

1. Repair and replacement work will be carried out as set out in the Sanden Heat Pump Water Heater System warranty. However the following exclusions may void the warranty and may incur a service charge and/or cost of parts:
2. Accidental damage to the Heat Pump Water Heater System or any component, including: Acts of God, failure due to misuse, incorrect installation, attempts to repair the water heater other than by a Sanden accredited service agent or the Sanden service department.
3. Where it is found there is nothing wrong with the Heat Pump Water Heater System; where the complaint is related to excessive discharge from the temperature and/or the pressure relief valve due to high water pressure; where there is no flow of hot water due to faulty plumbing; where water leaks are related to plumbing and not the Heat Pump Water Heater System or its components; where there is a failure of electricity or water supplies; where the supply of electricity or water does not comply with relevant codes or acts.
4. Where the Heat Pump Water Heater System or its component has failed directly or indirectly as a result of excessive water pressure.
5. Overflow vent drain has not been installed or blocked or corroded
6. Where the Heat Pump has rusted as a result of a corrosive atmosphere;
7. Where the unit fails to operate as a result of ice formation in the pipe work to or from the Heat Pump Water Heater System.

8. Where the Heat Pump Water Heater System is located in a position that does not comply with the Heat Pump Water Heater System installation instructions or relevant statutory requirements, causing the need for major dismantling or removal of cupboards, doors or walls, or use of special equipment to bring the Heat Pump Water Heater System to floor or ground level or to a serviceable position.
9. Repair and/or replacement of the Heat Pump Water Heater System due to scale formation in the waterways or the effects of either corrosive water or water with a high chloride or low pH level when the water heater has been connected to a scaling or corrosive water supply or a water supply with a high chloride or low pH level as outlined in the Owner's Guide and Installation Manual.

Subject to any statutory provisions to the contrary, this warranty excludes any and all claims for damage to furniture, carpets, walls, foundations or any other consequential loss either directly or indirectly due to leakage from the Heat Pump Water Heater System, or due to leakage from fittings and/or pipe work of metal, plastic or other materials caused by water temperature, workmanship or other modes of failure.

## **Warranty Period**

Subject to the Warranty Conditions and Exclusions stated above, your Sanden Heat Pump Water Heater System is warranted as follows:

**Heat pump unit** – Three years from date of installation

**Tank unit** – Ten years from date of installation

## **Registration for warranty**

In order to register your system for warranty purposes, please complete the details of your purchase below, detach and mail to

Sanden International (Australia) Pty Ltd  
6/17 Willfox Street  
Condell Park NSW 2200

Your name \_\_\_\_\_

Your mailing address \_\_\_\_\_ State \_\_\_\_\_

Postcode \_\_\_\_\_

Product Details:

Heat Pump Serial Number (from label on right end) \_\_\_\_\_

Hot Water Tank Serial Number (label on tank) \_\_\_\_\_

Date of Purchase/Installation \_\_\_\_/\_\_\_\_/20\_\_\_\_

Suppliers Name \_\_\_\_\_

You may register your product via email, to 'registration@sanden.com.au. Simply send an email containing the same details as shown above

Please Note: Similar registration details will be provided to Sanden by your supplier/installer to validate their claim for warranty support; it is essential that the dates of supply/installation correspond to within one month.