Skyline Energy

Ecological Solutions for the 21st Century

always in hot water... with nature's help

Installation Guidelines

These installation notes are provided simply to gain an insight into the proper installation requirements, and should be read in conjunction with the Installation Manual & User Manual which will be supplied with your system, which will contain the most recent information.

Domestic Models: 327SSAD, 264SSBD

Commercial Models: 327SSAC3, 4, 5, 6
327SSAC3x, 4x, 5x, 6x

Installers

Please read these instructions very carefully before undertaking the installation of this Heat Pump Water Heater System

For more information, please visit our website:

www.skylineenergy.com.au

Version 2.0 01/09

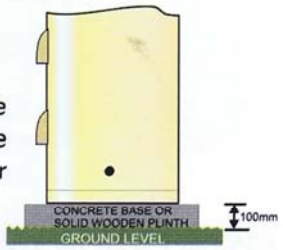
SECTION 1: PLUMBING INSTALLATION

A licensed plumber should install the heat pump. It is the installers responsibility to comply with all AS/NZ Standards, Building Codes and Trade Codes of Practice for complaint installations of domestic hot water heaters. In Australia, your plumber should also hold a Restricted Split System Air Conditioning Installation and Decommissioning License (Certificate II course under the Australian Refrigeration Council's code RSS03) covering air conditioning and heat pump split systems.

WATER TANK INSTALLATION

As the Water Tank does not require a sacrificial anode, the headroom above the cylinder only needs to accommodate convenient installation rather than the one metre or more required to remove/replace the anode. Therefore, the water tank can be comfortably installed inside or outside of your house in a tight space with little headroom, although the Heat Pump unit should be installed outside.

It is best to install the Water Tank close to the outlet that has the greatest usage of hot-water, such as the laundry or bathroom. Ensure adequate access for service to the Thermostat and Pressure and Temperature (P&T) relief valve. Ensure the specification label is visible. Installation must comply with Australian Standard AS/NZS 3500.4 and any local authority regulations.



OUTDOOR

For outdoor (external) installations, a plinth or concrete base pad is recommended in accordance with Australian Standard AS/NZS3500.4 to properly support the Solarstream water tank such that the water tank is assured of remaining in a vertical position throughout its usable life and not lean over due to possible erosion of soil under the plinth, or such risk.

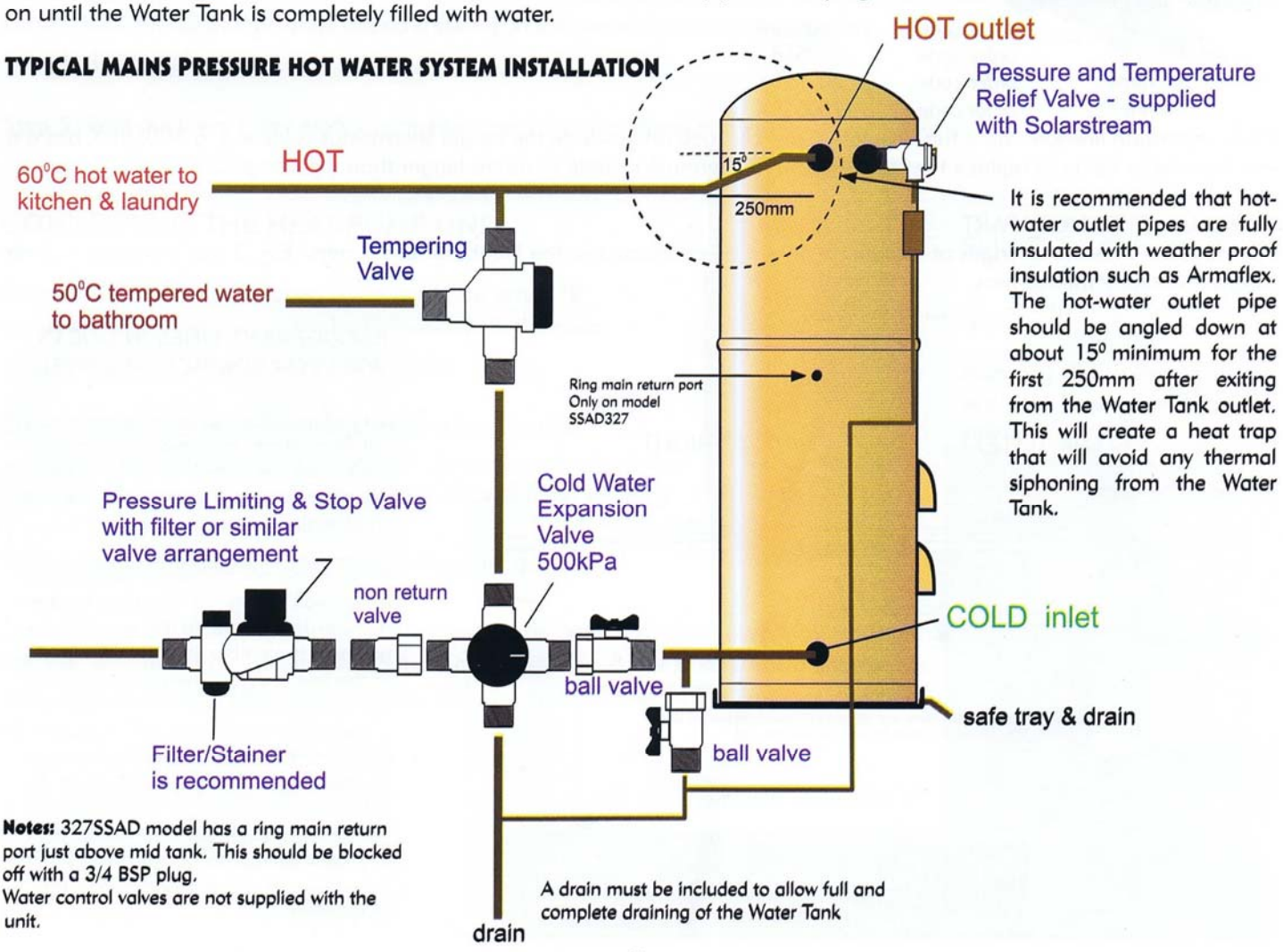
SIESMIC RESTRAINT

Some building codes require Seismic Restraint of storage water heaters to be adequately supported against earthquake forces. You should consider restraining the tank to a wall with Stainless Steel bands.

FILLING

Fill the Water Tank by opening all hot-water taps and opening the cold-water inlet to allow air in the system to be expelled. Close each hot-water tap; as the flow becomes free of air, check all pipes for any signs of leaks. Power should not be turned on until the Water Tank is completely filled with water.

TYPICAL MAINS PRESSURE HOT WATER SYSTEM INSTALLATION



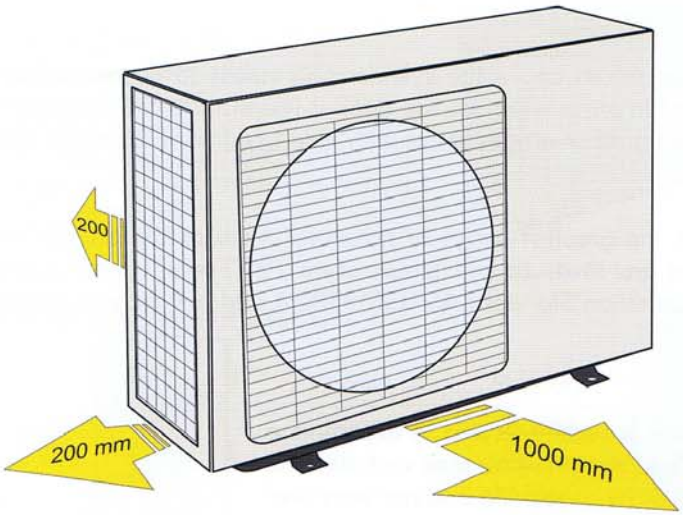
It is recommended that hot-water outlet pipes are fully insulated with weather proof insulation such as Armaflex. The hot-water outlet pipe should be angled down at about 15° minimum for the first 250mm after exiting from the Water Tank outlet. This will create a heat trap that will avoid any thermal siphoning from the Water Tank.

Notes: 327SSAD model has a ring main return port just above mid tank. This should be blocked off with a 3/4 BSP plug.
Water control valves are not supplied with the unit.

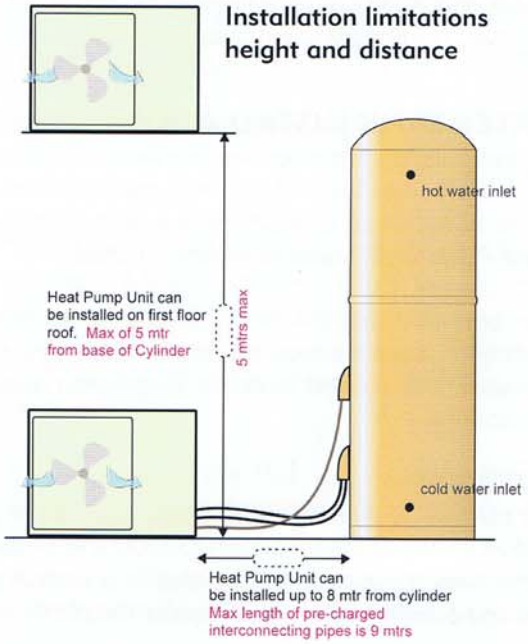
A drain must be included to allow full and complete draining of the Water Tank

SECTION 2: HEAT PUMP INSTALLATION

Clear space clearance around outdoor unit.
Locate the heat pump away from combustible material, inlet 200mm clear air, outlet 1m clear air



Installation limitations height and distance



INSTALLATIONS REQUIRING EXTENSION LINES

Standard unit has 2 mtrs of refrigerant line connected to the Heat Pump unit. Considering bends and connections, this allows the Heat Pump unit and Water Tank to be installed to a distance apart as shown (Drwg A). (This is intended as guide only.)

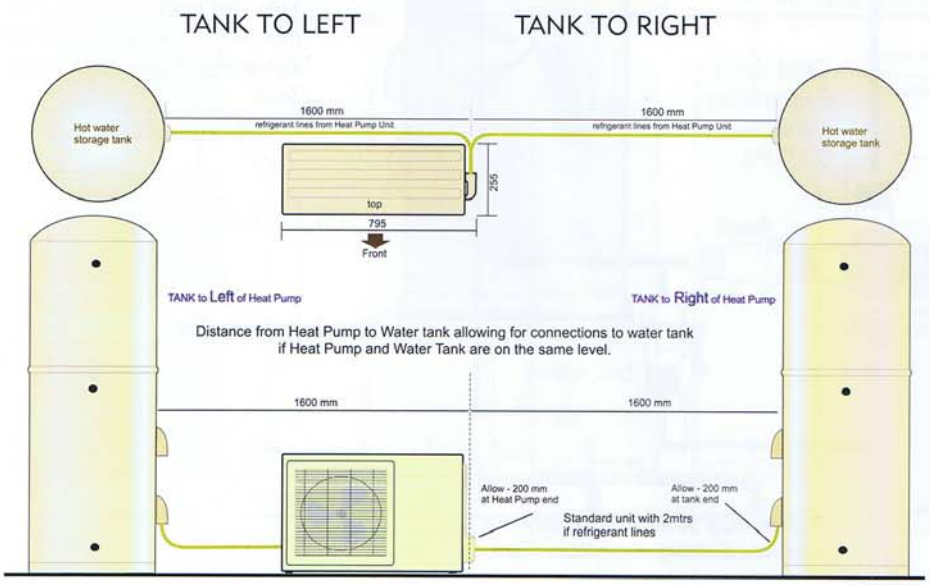
Many installations will require the Heat Pump outdoor unit and the Water Tank to be positioned further apart than the standard unit configuration allows. In these installations, an extension line kit needs to be used.
Extension line kit.

1.5 mtr	order code	150SSBX
3.0 mtr	order code	300SSBX
5.0 mtr	order code	500SSBX
7.0 mtr	order code	700SSBX

These extension line kits come fully insulated, pre-charged and include the longer thermostat cable e.g. a 300SSBX has a 6 mtr thermostat cable to replace the standard 3 mtr Thermostat cable (1 metre longer than the refrigerant lines).

MAXIMUM DISTANCE APART
The absolute maximum length of refrigerant line to be connected to the Heat Pump is 9 mtrs. E.g. 2 mts standard + 7mtr extension, total 9 metres max.

(Drwg A)



REFRIGERANT LINES IN DUCTS, WALLS OR SURFACE MOUNTED

In most installations the refrigerant lines will be surface mounted. They should always be protected in PVC surface trunking designed specifically for air conditioning systems.

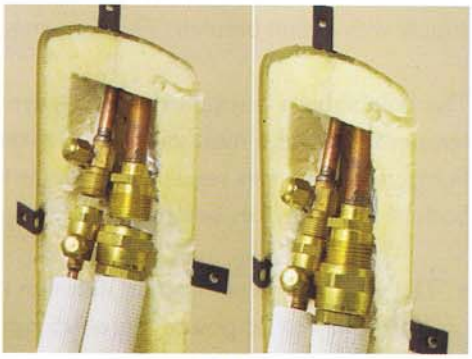
If the refrigerant lines are to be installed in a wall cavity or through timber framing they need to be installed by notching the timber. It is not possible to fit the line couplers through a hole less than 90mm diameter.

Refrigerant lines run underground must be enclosed in a 100mm PVC pipe. An extension kit should be used and run through the pipes prior to Installation. It is very difficult to get the refrigerant lines through ducting and bends after installation.

SECTION 3: HEAT PUMP TO TANK CONNECTIONS

CONNECTING THE REFRIGERANT LINES TO THE WATER TANK

Step 1. Carefully unwind the copper refrigeration pipes on the heat pump, take care to avoid kinking the pipes. The pipes are quite hard copper and will kink if care is not taken to carefully mould or form the curve required. If a tight bend to the right is required in the refrigeration lines, cut back the insulation and use a soft copper tube bender to form the bend. The insulation must be taped back in place once the bend is made.



Step 2. Remove the lower cover on the tank, find the two male refrigeration pipe couplers; you may need to gently pull them out from the tank if you find them difficult to access.

Step 3. **Important!** Feed the couplers and refrigerant lines through the holes in the cover plate to align with the respective couplers on the tank. **You can't undo the couplers later if you forget this step.**

Step 4. Carefully align the male & female couplers before tightening, misalignment can cause rupture or displacement of the internal "O-Ring" seal, causing refrigerant leakage & defective performance.

Use some mineral oil on the threads and rubber O-Ring and ensure the coupling nuts are fully tightened using two spanners, one on each half of the coupling then draw the coupling halves together tightly; please note you will feel some resistance when the metal diaphragms are punctured to facilitate refrigerant flow; keep tightening until you feel the "O-Ring" seal fully seated otherwise gas will leak under the high operating pressures.
Note: There should be little or no thread showing on the connectors when the couplers are fully tightened.

Step 5. Refit the lower cover plate and tighten the 4 Stainless Steel screws.

CONNECTING THE HEAT PUMP UNIT

Step 1. Remove the side cover "A" by removing screw "B". Pull the cover out slightly at the bottom and push the cover downwards a few millimeters to release tabs.

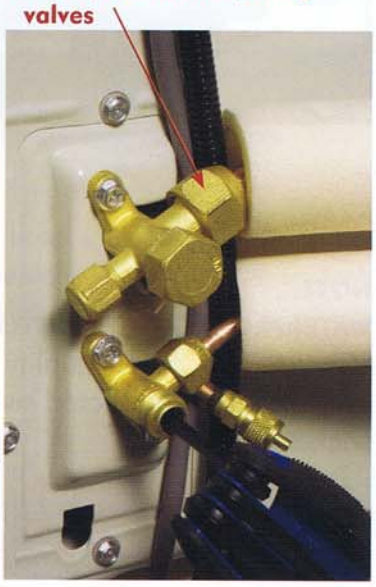
Step 2. Check that the flare fittings **(Note A)** on the line connectors are still very tight to ensure no gas leakage here. (If they are loose, the line may have leaked gas and could need service.)

Step 3. Remove the cover caps on the refrigerant gas valves.

Step 4. Open the two refrigerant gas flow valves at the base of the heat pump using a 5mm hex key. Turn the large valve approx 6 turns anti clockwise, & the smaller valve approx 2.5 turns anti-clockwise. Note: We recommend using soapy water on the couplers and flare fittings to check gas leaks. **(Note A)**

Step 5. Replace the cover caps on the refrigerant valves and refit the plastic side cover to the Heat Pump unit.

Note (A) Check flare fittings are tight before opening valves



Open the refrigerant gas valves only once you have checked the connections are all made correctly and are tight

SECTION 4: ELECTRICAL INSTALLATION

CONNECTING THE ELECTRICAL SYSTEMS

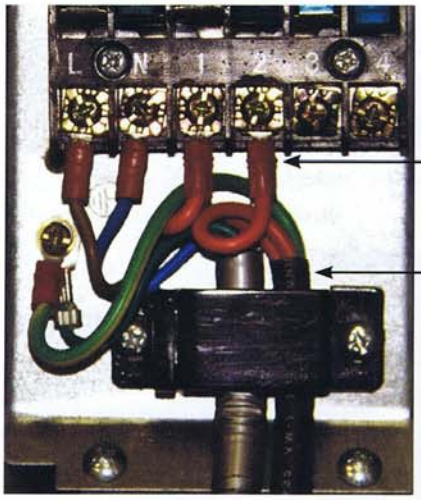
The Heat Pump is designed for single phase 230~240 V A.C. 50 Hz supply, max load 1400 watt. Australian Standard AS/NZ 3000 or AS/NZ 3006 Wiring Code and local supply authority regulations apply.

The Heat Pump should be plugged into standard day rate power points, or alternatively arrangements may be made with an electrician to have the power lead directly wired into an off-peak supply at the main circuit board. Allow for a 10 amp power supply with circuit breaker. *does not have an electrical booster element.*

The Heat Pump is supplied with a thermostat on the side of the Water Tank, behind the upper cover, to regulate the water temperature and a manual reset, over-temperature safety cut-out located on the side of the Heat Pump to protect the Heat Pump; these devices regulate the water temperature. Under no circumstances, should the Heat Pump be operated without both of these devices being in circuit.

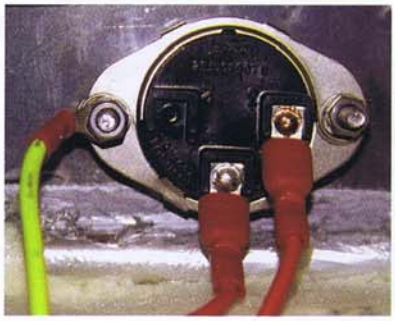
- The wiring loom connection between the Heat Pump and the Water Heater is standard 3 metres in length, designed for 230~240 volt ac power. It is a 1.5 mm^2 cable, protected in UV resistant flexible conduit.
- Fit the wiring loom through the cable hole in top inspection cover on the Water Tank and secure with the conduit gland and lock nut. Ensure the conduit gland is tight so cable cannot pull out.
- The spade lugs to Heat Pump, and quick connect couplings to the Water Tank.
- It is recommended that cable ties be used to tie the wiring loom to the refrigerant lines.
- Where refrigerant line extension kits are used (refer page 4) these kits are supplied with matching extension thermostat wiring looms.
- Never attempt to join or extend the wiring loom.
- Do not connect the thermostat directly to an external power outlet. The power source must be derived from the Heat Pump via the wiring loom. Replacement of the wiring loom should be undertaken only by a qualified electrician or authorised service technician.

A wiring diagram is located inside the plastic side cover of the heat pump (a detailed wiring diagram is located under heat pump lid for maintenance).



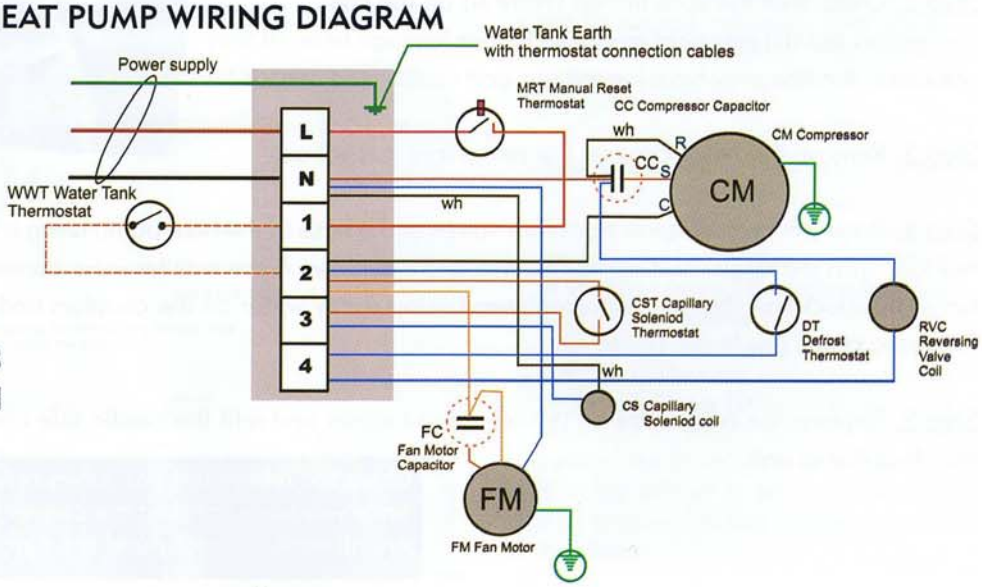
Heat Pump Connection
Thermostat Connection onto terminals 1&2
Earth to Earth lug

Thermostat cable inserted and secured under cable clamp.



Thermostat Connection
Push on connectors
Earth to Earth lug
Ensure earth connection is tight.

HEAT PUMP WIRING DIAGRAM



NOTE:
WATERPROOF SOCKET OUTLETS
Use only a high quality IP53 rated weather protected switched socket outlet.