ABOUT YOUR WATER HEATER

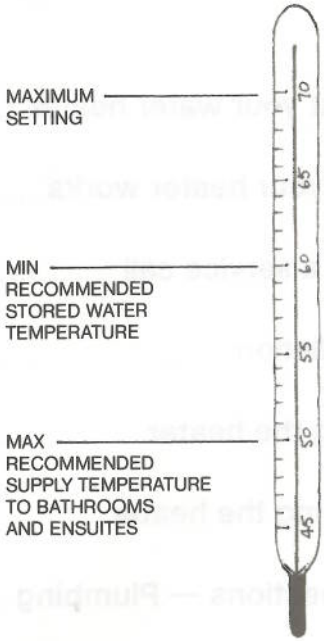
MODEL TYPE

Congratulations for choosing a Vulcan water heater. The model you have chosen is for outdoor installation only and will be either a Freeloader or Freeloader Super 10. The Super 10 models have an extended warranty (see page 16).

Both the Freeloader and Super 10 models are high efficiency water heaters.

HOW HOT SHOULD THE WATER BE?

These water heaters feature a user adjustable thermostat, which allows you to personally choose the most suitable temperature for your hot water needs. For reasons of safety and economy, we advise that you adjust the thermostat to the lowest setting which meets your needs, especially if there are young children or elderly people in your home.



HOTTER WATER INCREASES THE RISK OF SCALD INJURY.

We recommend, and it may also be required by regulations, that a temperature control device be fitted into the hot water piping to the bathroom and ensuite. This will keep the water temperature below 50°C at the bathroom and ensuite. The risk of scald injury will be reduced but still allow hotter water to the kitchen and laundry.

TEMPERATURE ADJUSTMENT

The temperature adjusting dial is behind the access cover (see page 11) on the lower front of the heater. The dial on your heater will be similar to one of the illustrations opposite. The settings shown will normally maintain the water temperature at about 60°C.

If going on holidays for more than a few days the thermostat can be set to "vacation" or its lowest setting to conserve energy.

ABOUT YOUR WATER HEATER

HOW LONG WILL THE WATER HEATER LAST?

There are a number of factors that will affect the length of service the heater will provide. These include the water quality, the water pressure and temperature (inlet and outlet) and the water usage pattern. However, your Vulcan water heater is supported by a comprehensive warranty. (See Page 16).

ANODE PROTECTION

The anode or anodes installed in your water heater will slowly dissipate whilst protecting the cylinder. The life of the water heater cylinder may be extended by arranging for an authorised person to inspect the anode(s) and replacing it if required.

The suggested time after installation when the anode should be inspected is:

Freeloader	7 years
Freeloader Super 10	10 years

For softened water supplies or in areas of bad water quality, it is recommended that the anode be inspected 3 years earlier than shown.

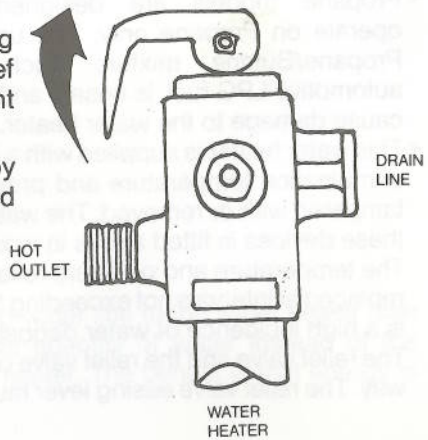
HOW DO I KNOW IF THE HEATER IS INSTALLED CORRECTLY?

Installation requirements are shown on page 11. The water heater must be installed by an authorised person and the installation must comply with national code AS3500.4, Australian Gas Association code AG601 and any local regulations.

IS REGULAR CARE REQUIRED?

We recommend that you operate the easing lever on the temperature and pressure relief valve once every six months. It is very important that you raise and lower the lever gently.

This heater should be serviced annually by Southcorp Water heater or their accredited service agent.



HOW YOUR HEATER WORKS

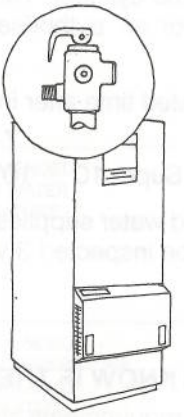
Water is stored in a steel cylinder with bonded ceramic coating and heated by a gas burner located under the cylinder. The gas supply to the burner is controlled by the thermostat so that the water is heated to a constant temperature. Automatic safety controls are fitted to this heater to provide safe and efficient operation.

MAINS PRESSURE

This heater is designed to operate at mains pressure by connecting directly to the mains water supply. If the mains supply pressure in your area exceeds that shown on Page 10, a pressure limiting valve must be fitted. The supply pressure should be greater than 350kPa for true mains pressure operation.

TEMPERATURE AND PRESSURE RELIEF VALVE

This valve is on the top of the heater and is essential for its safe operation. Normally it releases a little water through the drain pipe during each heating period. This occurs as the water is heated and expands by approximately 1/50 of its volume.



SAFETY

- Do not store inflammable materials near the heater.
- Do not spray aerosols near the heater while it is working.
- Do not place anything on top of the heater, or in contact with the front flue outlet.
- Propane models are designed to operate on Propane only. The use of Propane/Butane mixture such as automotive LPG fuel, is unsafe and can cause damage to the water heater.

- This water heater is supplied with a thermostat, an over-temperature cut-out, and a combination temperature and pressure relief valve. These devices must not be tampered with or removed. The water heater must not be operated unless each of these devices is fitted and is in working order.
  The temperature and pressure relief valve should be checked for performance or replaced at intervals not exceeding 5 years, or more frequently in areas where there is a high incidence of water deposits (see Page 15).
  The relief valve and the relief valve drain pipe must not be sealed or blocked in any way. The relief valve easing lever must be operated at least once every six months.

SAVE A SERVICE CALL

Check the items below before making a service call. You will be charged for attending to any fault that is not related to manufacture or failure of a part.

TEMPERATURE AND PRESSURE RELIEF VALVE RUNNING

- **Normal Operation**

  It is normal and desirable that this valve allows a small quantity of water to escape during the heating cycle. However, if it discharges more than a bucket full of water in 24 hours, there may be another problem.

- **Continuous dribble**

  Try gently raising the easing lever on the relief valve for a few seconds. This may dislodge a small particle of foreign matter and clear the fault. Release the lever gently.

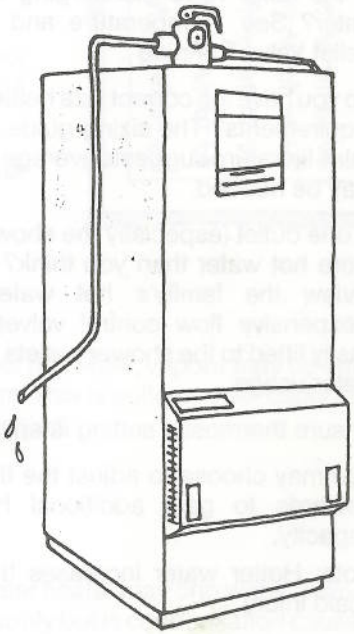
- **Steady flows for long periods (often at night)**

  This may indicate that the mains water pressure sometimes rises above the designed pressure of the heater. Ask your installing plumber to fit a pressure limiting valve.

  NEVER replace the relief valve with one of a higher pressure rating.

- **Heavy flows of hot water until heater is cold — then stops until water reheats.**

  The gas control **must** be turned off using the knob on top of the gas control thermostat. Phone your nearest Southcorp Water Heater office or service agent to arrange for inspection.



EXPANSION CONTROL VALVE

If an expansion control valve is fitted in the cold water line to the water heater (see Page 11) it would normally discharge a small quantity of water instead of the Temperature and Pressure Relief valve on the heater. The benefit is that energy is conserved as the discharged water is cooler.

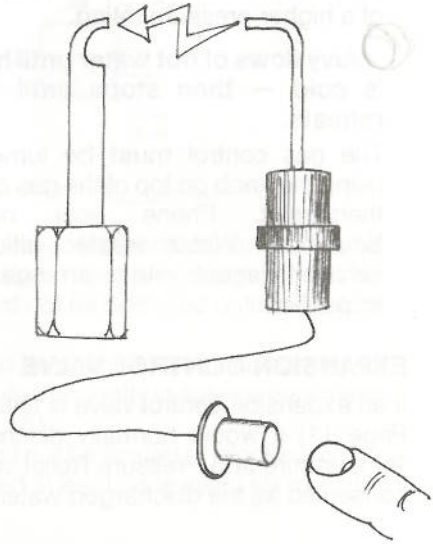
SAVE A SERVICE CALL

NOT ENOUGH HOT WATER (OR NO HOT WATER)

- Check that the pilot flame is burning by removing the access cover (see Page 11). Relight the pilot flame according to the instructions (Page 14).
- Is the relief valve discharging too much water? See "Temperature and Pressure Relief Valve Running".
- Do you have the correct size heater for your requirements? The sizing guide in Vulcan sales literature suggests average sizes that may be needed.
- Is one outlet (especially the shower) using more hot water than you think? Carefully review the family's hot water usage. Inexpensive flow control valves can be easily fitted to the shower outlets to reduce water usage.
- Ensure thermostat setting is appropriate.
- You may choose to adjust the thermostat upwards to gain additional hot water capacity.

  Note: Hotter water increases the risk of scald injury.

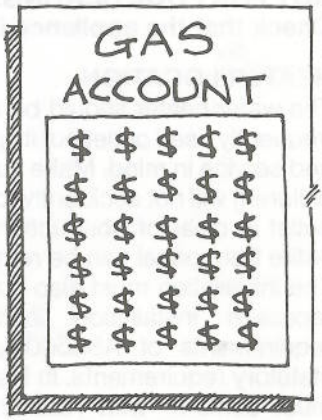
CAN'T LIGHT THE PILOT FLAME



- Is there gas to the heater? Check that the isolating valve in the gas line is "on".
- Is there a normal gas supply to the rest of the house? Try lighting another gas appliance to check. If no gas, call the gas supply authority.

SAVE A SERVICE CALL

HIGH GAS BILLS



- Is the relief valve running excessively? See "Temperature and Pressure Relief Valve Running".
- Is one outlet (especially the shower) using more hot water than you think? See "Not Enough Hot Water".
- there a leaking hot water pipe, dripping hot water tap etc? Even a small leak will waste a surprising quantity of hot water and gas.
- Replace faulty tap washers, and have your plumber rectify any leaking pipework.

WATER HEATER APPEARS TO BE LEAKING

When the heater is first lit, or after a large usage of hot water, vapour may be emitted from the flue terminal and condensation may form. This is quite normal, especially in winter months, and will dry off as the water is heated.

CONDENSATE DRAIN

The drain near the bottom left-hand side of the water heater may drip water during the heating cycle. This water is not from the mains supply but is condensation caused by the efficient operation of the water heater.

INSTALLATION

FOR OUTDOOR INSTALLATION ONLY.
NOT FOR POOL HEATING.
Check that the appliance is suitable for the gas available.

HEATER LOCATION

The water heater should be installed close to the most frequently used outlet but its position chosen with safety and service in mind. Make sure that people (particularly children) will not accidently touch the outlet, that the flue outlet is clear of obstructions and shrubbery and the entire front panel can be removed for service.
The installation must also comply with the standard or recessed installation instructions and with the requirements of AS3500.4, AG601 and any other statutory requirements. In New Zealand, the installation must conform with NZS5261 Code of Practice for Installation of Gas Burning Appliances and the New Zealand Building Code.
As a guide the following requirements extracted from AG601 are to be observed.

- At least 500mm horizontally between the flue terminal and the edge of any opening into the building.
- At least 500mm between the heater and a return wall or external corner.
- At least 500mm vertically from the flue terminal and any openable window.
- At least 500mm clear of any combustibles.

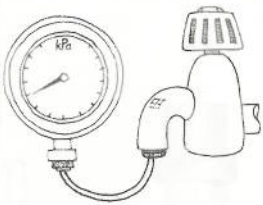
STANDARD INSTALLATION

The heater is mounted at ground level on a concrete or brick plinth (fireproof base) with the back of the heater **against** an external wall. The heater must stand vertically upright and it must be secured to the wall using the brackets provided.

RECESSED INSTALLATION

Kits are available for installing the heater partially recessed into an external wall.

MAINS WATER SUPPLY

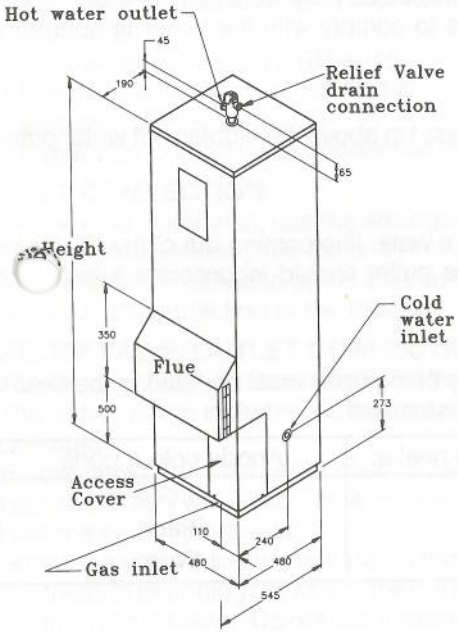


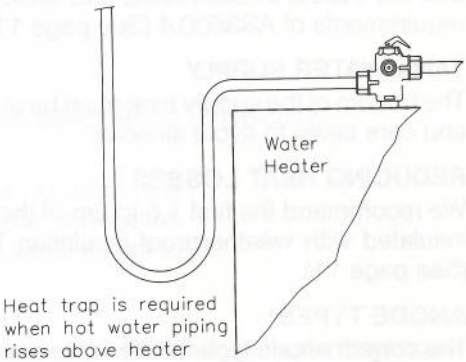
Where the mains water pressure exceeds that shown below, an approved pressure limiting valve **is required** and should be fitted as shown in the installation diagram. (See page 11).

Model	Freeloader and Super 10
Relief valve setting	1400kPa
Expansion control valve setting*	1200kpa
Max. mains supply pressure	
With expansion control valve	960kPa
Without expansion control valve	1120kPa

*Expansion control valve not supplied with water heater.

INSTALLATION



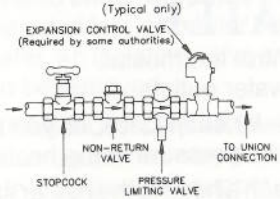


MODEL	230	260	300
Height (mm)	1360	1590	1965
Weight empty (kg)	83	94	105

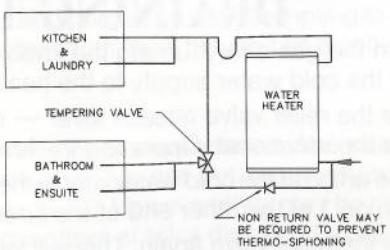
HOT WATER	Provide union for disconnection. Insulate pipe.
COLD WATER INLET	See details below as applicable to your local requirements.
GAS INLET	Gas supply pipe to be fitted with isolating valve and union.
THERMOSTAT & PIEZO IGNITER	Behind cover.
RELIEF VALVE	A drain pipe **must** be fitted.

COLD WATER CONNECTION DETAIL

(Typical only)



SCHEMATIC OF 2 TEMPERATURE ZONES USING A TEMPERING VALVE



INSTALLATION

HOT WATER DELIVERY

We recommend that a temperature control device be fitted between the water heater and the outlets in bathrooms and ensuites to comply with the water temperature requirements of AS3500.4 (See page 11).

TANK WATER SUPPLY

The bottom of the supply tank must be at least 1m above the highest hot water outlet and care taken to avoid airlocks.

REDUCING HEAT LOSSES

We recommend the first 1.5 to 2m of the hot water line coming out of the heater be insulated with weatherproof insulation This outlet should incorporate a heat trap (See page 11).

ANODE TYPES

The correct anode type for the water supply being used must be fitted in the heater (see Page 15). The black anode is fitted as standard.

Total Dissolved Solids in water supply to heater	Anode colour code
0-40 mg/L	Green
40-600 mg/L	Black
600-2500 mg/L	Blue

CONDENSATION

There is a condensate drain outlet at the bottom left hand side of the heater. This may be extended to prevent water accumulating around the heater. If extended, it must have a continuous fall to the outlet.

The condensate drain must not be connected to the T&PR drain but may discharge at the same point.

FILLING THE HEATER

The gas pilot or burner must not be lit until the heater is filled with water.

Open all of the hot water taps in the house (Don't forget the shower).

Open the cold water line to the heater.

Air will be forced out of the taps. As water flows freely from each tap, close it.

Now check the piping for leaks.

DRAINING THE HEATER

First turn the gas off by turning the knob on the gas control thermostat.

Turn off the cold water supply to the heater and all hot water outlets.

Operate the relief valve release lever — do not let the lever snap back, or you will damage the valve seat. Operating the lever will release the pressure in the heater.

Undo the union at the cold water inlet to the heater and attach a hose to the heater side of the union. Let the other end of the hose go to a drain.

Operate the relief valve again. This will let air into the heater, and allow the water to drain.

CONNECTIONS — PLUMBING

CONNECTION SIZES

- Hot water connection: G ½/15. Compression fitting for flared connection also provided.
- Cold water connection: RP ½/15.
- Relief valve connection: RP ½/15.
- Gas Inlet: RP ½/15.
- Expansion control valve connection (when fitted): RP½/15 typically.

INLET CONNECTION

On the cold water inlet, use the arrangement shown in the installation diagram. (See Page 11). A union connection must always be provided at the inlet on the water heater to allow for disconnection of the heater.

RELIEF VALVE/OUTLET CONNECTION

The Temperature and Pressure Relief Valve is shipped behind the heater front cover. This valve, which includes the outlet connection, must be fitted before the heater is operated.

Before fitting the relief valve, make sure the probe has not been bent.

Seal the thread with Teflon tape — never hemp. Make sure the tape does not hang over the end of the thread.

Screw the valve into the opening on top of the heater (see installation diagram). For neatness of plumbing the axis of the hot water outlet and drain should be parralel with the front of the heater. Do not use a wrench on the valve body — use the spanner flats provided.

RELIEF VALVE DRAIN

A drainpipe must be fitted to carry the discharge clear of the heater. The pipework from the relief valve to the drain should be as short as possible, and fall all the way from the heater with no restrictions. It should have no more than three right angle bends in it. Use 15mm OD (½") pipe. The outlet of the drainpipe must be in such a position that flow out of the pipe can be easily seen (Refer AS3500.4) — but arranged so that hot water discharge will not cause injury, damage or nuisance. The relief line must discharge at an outlet or air break not more than 9m from the relief valve.

GAS INLET

This connection is made to the gas control which is located behind the access panel.

Caution: Care is necessary when tightening fittings into the gas valve. The valve casting may crack if fittings are over tightened. Cracked valve castings are not covered under warranty. Damaged valves must be replaced. The pipework must be cleared of foreign matter before connection and purged before attempting to light the heater. An isolating valve and a disconnection union must be used so that the heater can be removed.

EXPANSION-CONTROL VALVE

Local regulations may make it mandatory to install an expansion-control valve (ECV) in the cold water supply line. In other areas ECVs are not required unless the saturation index is greater than+0.4 (See page 15). However, they may be needed in corrosive water where there are sufficient quantities of silica dissolved in the water. A drainline must be run separately from the drain of the relief valve.

LIGHTING THE HEATER

FIRST, MAKE SURE THAT THE HEATER IS FILLED WITH WATER AND THAT THE WATER SUPPLY IS ON, OTHERWISE SERIOUS DAMAGE TO THE CYLINDER LINING AND PLASTIC COMPONENTS MAY OCCUR.

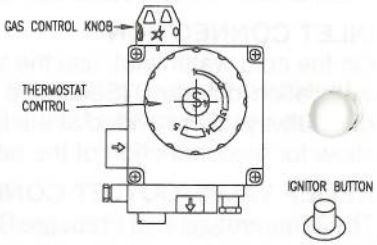
Remove the access door at the front of the heater. The Installer must check all gas connections for leaks, gas supply pressure, test point pressure (refer rating label) and adjust burner aeration if necessary (refer BURNER AERATION).

LIGHTING INSTRUCTIONS

1. Turn the gas control knob to position "OFF or ● " depending on gas control type.
2. Wait 5 minutes for the escape of unburnt gas.

CAUTION: FOR YOUR SAFETY, WAIT THE FULL 5 MINUTES TO ALLOW FOR THE ESCAPE OF UNBURNT GAS FROM THE HEATER.

3. Check that isolating cocks on gas supply pipe and water supply pipe to heater are on, and storage tank is full of water.
4. Turn gas control to position "PILOT or ★ ", depending on gas control type.
5. Wait for 10 seconds, then while continuing to hold the pilot button down, press ignitor button repeatedly until pilot lights.



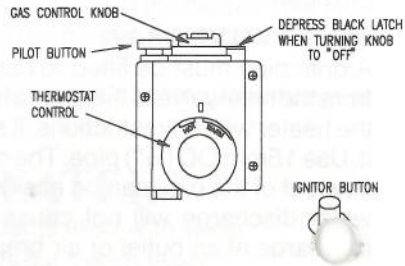
CAUTION: FOR YOUR SAFETY, KEEP YOUR FACE AWAY FROM THE ACCESS DOOR OPENING WHEN PRESSING IGNITOR BUTTON

Unless pilot is alight, do not hold button down for more than the few seconds necessary to check for successful ignition.

6. Continue holding pilot button down for approximately 1 minute.
7. Release pilot button and recheck that pilot is alight.
8. If pilot has failed to light or has not remained alight, turn gas control knob to position "OFF or ● ", depending on gas control type. Wait 5 minutes for the escape of unburnt gas, then begin again at step 4.

CAUTION: FOR YOUR SAFETY, WAIT THE FULL 5 MINUTES BEFORE YOU TRY TO LIGHT THE HEATER AGAIN.

9. Turn gas control to position "ON or ▮", depending on gas control type. (once the knob is released it will return to position" 🔥 ").
10. Turn thermostat control to desired setting.
11. Replace access panel.
12. If burner does not light at selected setting, the water may already be at the selected temperature.



TO TURN HEATER OFF

Turn gas control to position "PILOT or ★ ", depending on gas control type. This will turn main burner off leaving pilot alight. If heater is turned off completely, turn gas control knob to position "OFF or ● ", depending on gas control type.

NOTE: NEVER press the igniter button while the top knob is in the ON position.

TEST THE HEATER AFTER INSTALLATION

- The operation of the heater must be thoroughly checked by the installer.
- The burner flame must light smoothly and quickly from the pilot flame, and must go out quietly and completely.
- The main burner flame should be blue, with a clearly defined inner cone — luminous yellow or "floating" flames are not acceptable, and must be corrected by adjusting the burner aeration.
- Check the test point pressure and compare with the rating label. Adjust if necessary.
- If unable to get the heater working properly, contact the nearest Southcorp Water Heater Service Department or their accredited service agent.
- When satisfied that everything is working properly instruct the user in the correct method of operation.

BURNER AERATION

- The following adjustments may be required for correct burner aeration.
- Adjust aeration by loosening locknut and turning interupter screw.
- Turn screw in to reduce air and prevent lifting or popping on extinction.
- Turn screw out to increase air and shorten flames.

WATER SUPPLIES

Your Vulcan heater is manufactured to suit the water conditions of most Australian metropolitan supplies. However, there are some known water supplies that can have detrimental effects on the heater and its operation and/or life expectancy. If you are unsure of your water quality, you can obtain information from your local water supply authority.

ANODE

By using the correct colour coded anode this water heater can be used in areas where the total dissolved solids (TDS) content in the water is up to 2500 mg/L. In areas where the TDS exceeds 600 mg/L it is possible that the black anode, which is the standard anode fitted to the heater, may be excessively active. To alleviate this, the black anode should be replaced with one colour coded blue. Where the TDS of the water is less than 40 mg/L, such as when the water has been deionised or is from an alpine supply, a high potential anode, colour coded green, should be used. The changing of anodes must be carried out by a plumber or authorised service person.

CAUTION

If your water supply has a TDS greater than 600 mg/L and the anode has not been changed to a blue one, there is the possibility that hydrogen gas could accumulate in the top of the water heater during long periods of no use.

If, under these conditions, the water heater has not been used for two or more weeks the following procedure should be carried out before using any electrical appliances (automatic washing machines and dishwashers) which are connected to the hot water supply.

The hydrogen, which is highly flammable, should be vented safely by opening a hot tap and allowing the water to flow. There should be no smoking or naked flame near the tap whilst it is turned on. Any hydrogen gas will be dissipated. This is indicated by an unusual spurting of the water from the tap. Once the water runs freely again any hydrogen in the system will have been released. In areas where this is likely to occur, the householder should be instructed by the installer on how to dissipate the gas safely.

SATURATION INDEX

The saturation index is used as a measure of the waters corrosive or scaling properties. In a scaling water supply calcium carbonate is deposited out of the water onto any hot metallic surface. When scaling water has a saturation index greater than +0.40 an expansion control valve* must be fitted on the cold water supply after the non-return valve.

*Refer to INSTALLATION.

HEATERS NOT INSTALLED IN ACCORDANCE WITH THE ABOVE ADVICE WILL NOT BE COVERED BY THE VULCAN WARRANTY.