

HEAT PUMPS

A cool way to heat your home for less.

New Zealanders are facing increasingly higher energy prices over the next few years due, in large part, to the depletion of the Maui gas field. So how do you heat your home with an eye to future costs and continued supply? The answer is by using the most efficient heating options on the market - heat pumps. Because they extract warmth from outside air, they deliver considerably more heat than they use in electricity. Heat pumps provide;

- safe
- convenient,
- economic,
- efficient,
- environmentally-friendly,
- thermostatically-controlled

heating that can be set to come on and off automatically at different times of the day. If you install a heat pump and keep your home about as warm as you do now, you could save a considerable amount in heating costs.

How heat pumps work.

Use an old fashioned bicycle pump for a while and it will get hot. That's because gas (air) is being compressed. Spray an aerosol can and the valve area will become cold. This is because the compressed gas in the aerosol can is expanding.

Heat pumps (like refrigerators) have a system of pipes containing gas (refrigerant) that is continuously expanding in one part of the system and compressing in another. When the gas is being compressed, it gets hot. A heat pump's exterior unit compresses the gas, then pumps it to the interior unit where the gas runs over a series of finned coils, giving off its heat.

The gas is then returned to the outside unit, where it expands and runs through another set of finned coils which become cold. The gas is then recompressed and the cycle continues.

For summer cooling, the refrigerant flow is reversed, so the interior unit becomes cool, while the exterior cold.

Heat pumps shift more heat than the electrical energy consumed in compressing the refrigerant and running the fans, making them highly-efficient methods of heating.

DAIKIN - the heat pump for today's eco-friendly home.

Water heating and space heating account for more than 60 per cent of a home's energy cost which makes them the best place to look for savings.

But that's difficult. Conventional electrical heating is already 100 per cent efficient. If you put one kilowatt of electricity into an electric heater, you get one kilowatt of heat out. So, as long as the heat isn't being wasted, most people would assume the only way to make savings is to turn the heater down.

Not any more. The **DAIKIN** Inverter heat pump actually pumps out over three times more energy, in the form of heat, than they consume. Impossible? Not at all. The pump simply transfers the heat from somewhere else. They pump warmth from the air outside into the house - hence the term 'heat pump'.

Unlike conventional heaters, the power isn't converted into heat, it is only used to power the pump that circulates the liquid through the system. The same principal is at work in your refrigerator. The heat pump in your fridge extracts the warmth from inside the fridge and releases it outside which is why the back of your fridge is warm. And it continues to work even when the inside is colder than the outside.

The **DAIKIN** heat pump warms your home the same way. Even on bitterly cold days, its heat exchanger unit can extract 'warmth' from cold air outside and transfer it into a heated room, just as your fridge keeps extracting heat from your freezer even when it's below zero. The **DAIKIN** heat pump can still warm your home when the air outside is 10 degrees below zero!

And best of all, heat pumps can be flicked into reverse to provide cooling in summer. Say air conditioner to most people and they will think of big noisy boxes, but they are a thing of the past. A modern **DAIKIN** domestic air conditioner runs as quietly as a desktop fan. At around 32 decibels, it's quiet enough to hear a pin drop.

A heat pump uses the electricity needed to run a one-bar heater and converts it into the heat output of a four-bar heater. That makes the running costs less than half that of gas or traditional electric heating.

Heat pumps cost more to install than conventional electric heaters but they pay for themselves with running costs that are about half those of gas or electric heating and less than a fifth of an LPG heater. Heating in winter, cooling in summer, they also filter the air to remove irritants like pollen and dust -and they work as dehumidifiers. That saves the cost of buying several different units, making a domestic heat pump air-conditioner a very cost effective package for a forward looking homeowner.

It works out at about \$200 a year for the average home compared to up to \$800 a year for gas or traditional electric heating.

The heat pump is also less harmful to the environment. It doesn't produce any carbon dioxide emissions that contribute to global warming. Carbon dioxide and other gas and water vapour emissions are often regarded as a major drawback of solid fuel and gas heating.