WARRANTY

The Daikin warranty is part of our commitment to you. It provides the assurance of knowing you're covered. The 5-year Parts and Labour Warranty applies to the indoor unit (Hydro Box) and outdoor unit in this brochure, purchased and installed in Australia and New Zealand.

The domestic hot water tank warranty includes 5-year replacement warranty of the cylinder, including labour and a 12-month replacement warranty of components, including labour.

For full warranty terms and conditions contact Daikin (details below).

QUALITY QUALIFICATIONS

Daikin Industries Limited is the first air conditioning equipment manufacturer in Japan to receive ISO 9001 certification. All Daikin manufacturing facilities have been certified to ISO 9001 Quality Management System requirements. ISO 9000
Series Certificate is awarded to suppliers fulfilling the requirements of ISO standards. ISO 9001 is a certificate for quality assurance concerning 'design, development, manufacturing, installation and related service' of products manufactured at that factory.

ASSUMPTIONS

All representations made in Daikin Marketing and Promotional material are based on the assumptions that the correct equipment has been selected, appropriately sized and installed in accordance with Daikin's installation instructions and standard industry practices.

ENVIRONMENT QUALIFICATIONS

Daikin Industries Limited has received ISO 14001 Environmental Certification for the Daikin production facilities listed below. ISO 14001 is an international standard specifying requirement for an environmental management system, enabling an organisation to formulate policy and objectives, taking into account legislative requirements and information about significant environmental impacts. It applies to those environmental aspects within the organisation's control and over which it can be expected to have an influence.

The certification relates only to the environmental management system and does not constitute any endorsement of the products shipped from the facility by the International Organisation for Standardisation.

AU07929
The ARCtick logo identifies businesses with a Refrigerant Trading Authorisation and technicians with a Refrigerant Handling Licence.

Head Office / Tokyo Office Certificate number: EC02J0355
Shiga Plant (Japan) Certificate number: EC99J2044
Sakai Plant (Japan) Certificate number: JQA-E-80009
Daikin Industries Ltd (Thailand) Certificate number: JQA-E-90108
Yodogawa Plant (Japan) Certificate number: EC99J2057
Dakin Australia Pty Ltd (ISO14001) Certificate number: CEM20437
October 27, 2006 Sydney, Brisbane

Residential Air Conditioning Manufacturing Div. (ISO 9001) JQA-0486 May 2, 1994 (Shiga Plant)

Commercial Air Conditioning and Refrigeration Manufacturing Div. (ISO 9001) JMI0107 December 28, 1992 (Kanaoka Factory and Rinkai Factory at Sakai Plant)

Industrial System and Chiller Products Manufacturing Div. (ISO 9001) JQA-0495 May 16, 1994 (Yodogawa Plant and Kanaoka Factory and Kishiwada Factory)

Daikin Europe N.V. (ISO 9001) Lloyd 928589.1 June 2, 1993

Daikin Industries (Thailand) Ltd. (ISO 9001) JQA-1452 September 13, 2002 (ISO 9001)

Daikin Australia Pty Limited (ISO 9001) QEC 23256 May 31, 2006 Sydney, Brisbane, Adelaide, Melbourne, Newcastle, Townsville, Perth CEM 20437 October 27, 2006 Sydney, Brisbane

Contact Details

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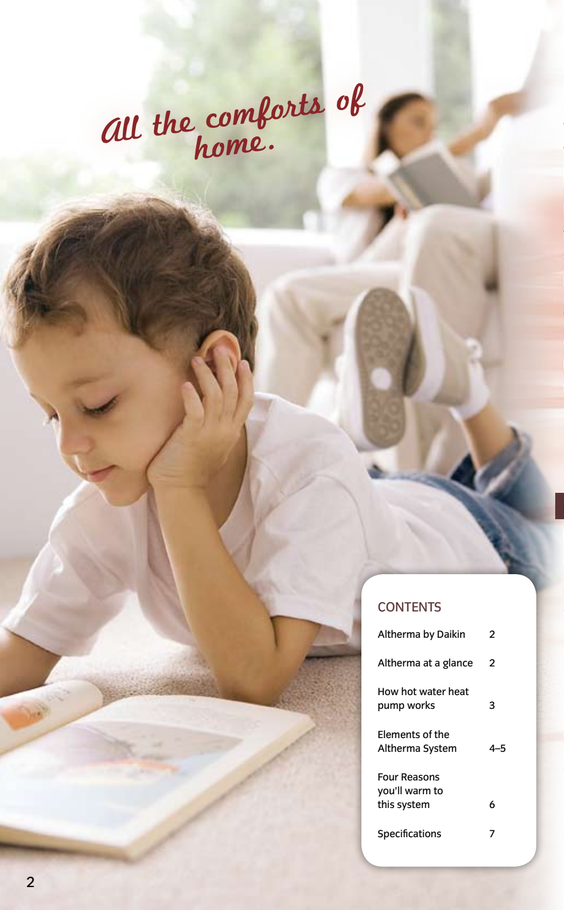
Visit our website at www.daikin.com.au or www.daikin.co.nz For your nearest **Daikin Dealer** call 1300 368 300 (Australia only) or 1300 DAIKIN (Australia only) 0800 324 546 (New Zealand)

Dealer:

Locations: Sydney, Brisbane, Adelaide, Melbourne, Darwin, Newcastle, Townsville, Perth, Tasmania, Auckland

DAIKIN UNDERFLOOR HEATING

DAIKIN altherma



All the comforts of home.

CONTENTS

Altherma by Daikin

Altherma is a highly flexible, energy efficient home heating system that extracts the heat from the outside air, raises this heat to a higher temperature and then distributes warmth around the home through high quality heating units. At the heart of the system lies an air to water heat pump.

Daikin Altherma now offers the option of the domestic hot water tank, which supplies you with your domestic hot water needs all year round. With the inclusion of the domestic hot water tank, Daikin Altherma now offers the total heating solution.

The Altherma air to water heat pump is today's answer to the current and future problems associated with conventional heating systems, such as, increasing primary energy costs and a high environmental impact.

Altherma at a glance

FEEL COMFORTABLE FROM HEAD TO TOE

Daikin's hot water heat pump air-to-water system creates an optimal room temperature for you and your family. This system is available in heating only, or reverse cycle (heating & cooling) options.

The heating system is located in your floor and heats your home from the floor up, so you'll feel the warmth on your feet. This heat then radiates upwards, surrounding your entire body in warmth. You enjoy a cozy temperature in just 3 steps:

1. The heat pump extracts free low temperature heat from the outside air.

2. The system raises the temperature of the recovered heat.

3. This greater warmth is then distributed throughout your home via heating emitters.

The reverse cycle system satisfies your heating requirements, but can also be used for cooling your home. It simply reverses the heating process by extracting heat from the inside of your home and exhausts it to the outside leaving the inside of your home cooler.

How the hot water heat pump works

WHAT'S THE MAGIC BEHIND HEAT PUMPS?

It all starts with the sun. The sun warms up our atmosphere and the outer layer of the earth's crust. In one year the energy sent to the earth by the sun is 50 times higher than the total consumption of energy on our planet. This makes the sun a vast source of energy. On sunny days you can feel the thermal energy from the sun on your skin. But actually, there is always a lot of thermal energy in the air, even on a cold winter night.

HOW DO THEY WORK?

Heat pumps take thermal energy from the atmosphere, or from water (rivers, lakes…) or from the ground. With this system, energy is extracted from the outside air, which is cheaper and simpler than the other alternatives. In order to take energy from the air the heat pump needs some energy to start with and requires only 1 kilowatt of electricity to pump 3 to 5 kilowatts of heat into your home. In other words, between 66-80% of the heat produced by the hot water heat pump comes from the outside air and is free of charge.

WHERE DOES IT ALL START?

A heat pump only needs a heat source (the outside air), two heat exchangers (one to absorb and another one to release heat) and a relatively small amount of drive energy to keep the system going.

A heat pump extracts heat energy from the environment. In the case of this system, the source is the outside air. The pump extracts the energy at a certain temperature, increases that temperature and then releases it into a medium which in this system is the water running to your low temperature radiators, under floor heating system or fan coil units. Between those two media the heat is moved by means of a refrigerant.

WHAT IS A REFRIGERANT AND WHAT IS ITS ROLE?

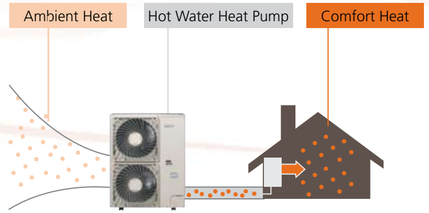
This refrigerant is a special liquid that evaporates at a lower temperature than the temperature of the outside air. Copper coils bring the outside air into contact with the refrigerant, which absorbs heat energy from the air. This is the first heat exchange. The refrigerant then evaporates and extracts heat.

COMPRESSOR – THE ESSENCE OF HEAT PUMPS

As the refrigerant passes through the evaporator and extracts heat from the air, it turns into a gas. This is where the compressor comes up. When you compress a gas, the heat energy in the gas is concentrated together and as a result, the temperature rises.

In a heat pump compressor, the temperature rises far above the original temperature of the source (outside air in the case of the hot water heat pump). Inside your house the second heat exchange takes place when the compressed gas enters the condenser, a surface that is colder than the gas itself. Finally, the gas condenses and releases heat – the heat that warms up your house.

Condensing means that the gas turns into a fluid again. It passes through an expansion valve, resumes its original pressure and the whole process can start all over.



Elements of the Altherma System

The heat pump system consists of an outdoor unit, indoor unit hydro box (incorporating the control system) and a domestic hot water tank.

OUTDOOR UNIT: SUSTAINABLE ENERGY CONVERTER

The outdoor unit extracts heat from the outside air and raises its temperature to a level high enough to supply heating. The heat is then transferred to the indoor unit through refrigeration pipework (thus, the additional advantage is that the pipes can never freeze). The compact outdoor unit is easily installed as no drilling or excavation work is required.

INDOOR HYDROBOX: HEATING AND HOT WATER SYSTEM

The Hydrobox transfers the heat to the water circulating in the underfloor heating, radiators or fan coil units and also to the domestic hot water tank. If you opt for the combination of heating and cooling, then the indoor unit can also decrease the water temperature to distribute a refreshing coolness.

DAIKIN ALTHERMA HOT WATER TANK: DESIGNED FOR LOW ENERGY CONSUMPTION

As for supplying hot water, Altherma is just as clever. The unique layout and special placement of the system components maximises energy efficiency. The water inside the storage tank is primarily warmed up by the thermal energy from the outside air, thanks to the heat pump. The combination of an electric element, in the upper part of the tank, and the heat pump heat exchanger, in the lower part of the tank, ensures the lowest possible energy consumption with rapid water heating. In addition, a built in disinfection function can automatically raise the water temperature to 70˚C or higher to prevent the risk of bacteria growth.

SYSTEM CONTROLS

System controls are contained within the hydro-box and feature a 7-day timer that enables the indoor temperature to be controlled according to user requirements. The timer is programmable on an hourly or daily basis so that temperatures can be reduced at night or during holidays and increased prior to rising in the morning or returning home. User comfort according to personal preference is thus maintained at all times. Where control over individual room temperatures and comfort levels is needed a conventional room controller can be added.

Which heating system to use?

There are several different types of system to provide heating in your home and Altherma is compatible with all of them. The selected system can simply be connected to the Altherma unit. Below are examples of some of the most commonly used heating emitters.

UNDERFLOOR HEATING

Underfloor heating is possibly the best solution for new installations.
The main benefits are:

- Maximum comfort due to radiated heat
- Maximum efficiency compared to other heat emitters
- Unobtrusive [i.e. no wall space required]
- Seasonal COP typically 3.5 to 4.5
- Water flow temperatures typically 35 to 40˚C

FAN COILS

These systems are more flexible in that they can provide both heating and cooling if required.
The main benefits are:

- Able to heat and cool
- Cased or concealed units
- Individual control
- Ease of installation
- Water flow temperatures typically 35˚C heating 7˚C for cooling option
- Seasonal COP heating typically 3.5 to 4.5

RADIATORS

A traditionally used system as costs relatively inexpensive compared to other systems.
The main benefits are:

- Traditional heating solution
- Low capital cost
- Ease of installation
- Water temperature typically 50˚C with heat pumps (radiators must be sized accordingly)
- Seasonal COP with weather compensation typically 2.5 to 3.5

DID YOU KNOW THAT...

Daikin's hot water heat pump has an automatic control system that can adjust the system's operation to varying conditions. So you always enjoy optimal comfort and efficiency.

Four reasons why you'll really warm to Daikin's Altherma System

1. LESS ENERGY, PERFECT WARMTH

Daikin's hot water heat pump makes use of the free heat in the outside air, so you use less energy while still enjoying a perfect level of comfort. And since heat collected by Daikin's air source heat pump system is free of charge and maintenance is minimal, it's the smart solution for your heating needs. In addition, the inverter technology means your energy savings are even greater.

2. STAY WARM IN EXTREME WEATHER

Even in the coldest weather, heat energy is still present in the air. This is where a hot water heat pump System excels as it can extract the heat from the air in even the coldest weather. At times where there is insufficient heat in the outdoor air the unit comes equipped with a back up heater to take care of the shortfall.

3. FLEXIBLE CONFIGURATIONS

Daikin's hot water heat pump provides the latest heating technology and can be configured for use in both new and refurbishment applications. This system is ideal for new houses as the pipes can be easily installed in the floor when the house is being built. In times when pipes can't be installed in the floor (i.e. existing homes or apartments) the system can connect to heating radiators installed around the house. Daikin's hot water heat pump may be easily adaptable to most components of your existing home, however your installer can discuss these options with you.

4. CLEAN & SAFE

Hot water heat pump works without oil, flammable gas (LPG, natural gas) or other hazardous substances, thus – reducing potential risks that these fuels can create . Moreover, you don't need a gas connection or a fuel tank. No risk of intoxication, smell or pollution from leaking tanks.

OUTDOOR UNIT
(ERHQ)

INDOOR UNIT (HYDRO BOX)
(EKHBHO/EXHBXO)

NEW

DAIKIN ALTHERMA HOT WATER TANK
(EKHWS300B3V3)

		HEATING ONLY			REVERSE CYCLE		
INDOOR UNIT (HYDRO BOX)		**EKHBH016AB3V3**	**EKHBH016AB3V3**	**EKHBH016AB3V3**	**EKHBX016AB3V3**	**EKHBX016AB3V3**	**EKHBX016AB3V3**
OUTDOOR UNIT		**ERHQ011AAV3**	**ERHQ014AAV3**	**ERHQ016AAV3**	**ERHQ011AAV3**	**ERHQ014AAV3**	**ERHQ016AAV3**
Normal capacity	heating (kW)	11.2	14.0	16.0	11.2	14.0	16.0
	cooling (kW)	-			13.9	17.3	17.8
Normal input	heating (kW)	2.46	3.17	3.83	2.46	3.17	3.83
	cooling (kW)	-			3.79	5.78	6.77
Leaving water temperature range	heating (°C)	15 to 55			15 to 55		
	cooling (°C)	-			5 to 22		
Material	indoor (mm)	Epoxy polyester painted galvanised steel					
	outdoor (mm)	Painted galvanised steel plate					
Colour	indoor	Ivory white					
	outdoor	Neutral white					
Electric booster heater (kW)		3			3		
C.O.P (Heating Efficiency)		4.55	4.42	4.18	4.55	4.42	4.18
EER (Cooling Efficiency)					3.67	2.99	2.63
Dimensions (HxWxD)	indoor (mm)	922 x 502 x 361			922 x 502 x 361		
	outdoor (mm)	1170 x 900 x 320			1170 x 900 x 320		
Weight	indoor (kg)	55			55		
	outdoor (kg)	103			103		
Outdoor operation range	heating (°CWB)	(-20) to 35			(-20) to 35		
	cooling (°CDB)	-			10 to 46		
Refrigerant charge	R-410A (kg)	3.7			3.7		
Power supply		1 Phase, 230-240V, 50Hz			1 Phase, 230-240V, 50Hz		
Indoor sound pressure level	dBA	28			28		
Outdoor sound pressure level	heating (dBA)	49	51	53	49	51	53
	cooling (dBA)	50	52	54	50	52	54
Outdoor EPA sound power level	heating (dBA)	64		66	64		66
	cooling (dBA)	64	66	69	64	66	69
Sound pressure night quiet mode	heating (dBA)	42		43	42		43

Cooling: Outside temperature 35°CDB, leaving water temperature 18°C, water temperature rise 5°C
Heating: Outside temperature 7°CDB/6°CWB, leaving water temperature 35°C, water temperature rise 5°C