Air conditioners

Heat recovery

VRV III

VRV®III heat recovery, with connection to heating only hydrobox

- **Fully integrated system**
- **“Free” hot water**
- **High energy efficiency**
- **VRV® plug-and-play installation**

www.daikin.eu

REYAQ-P

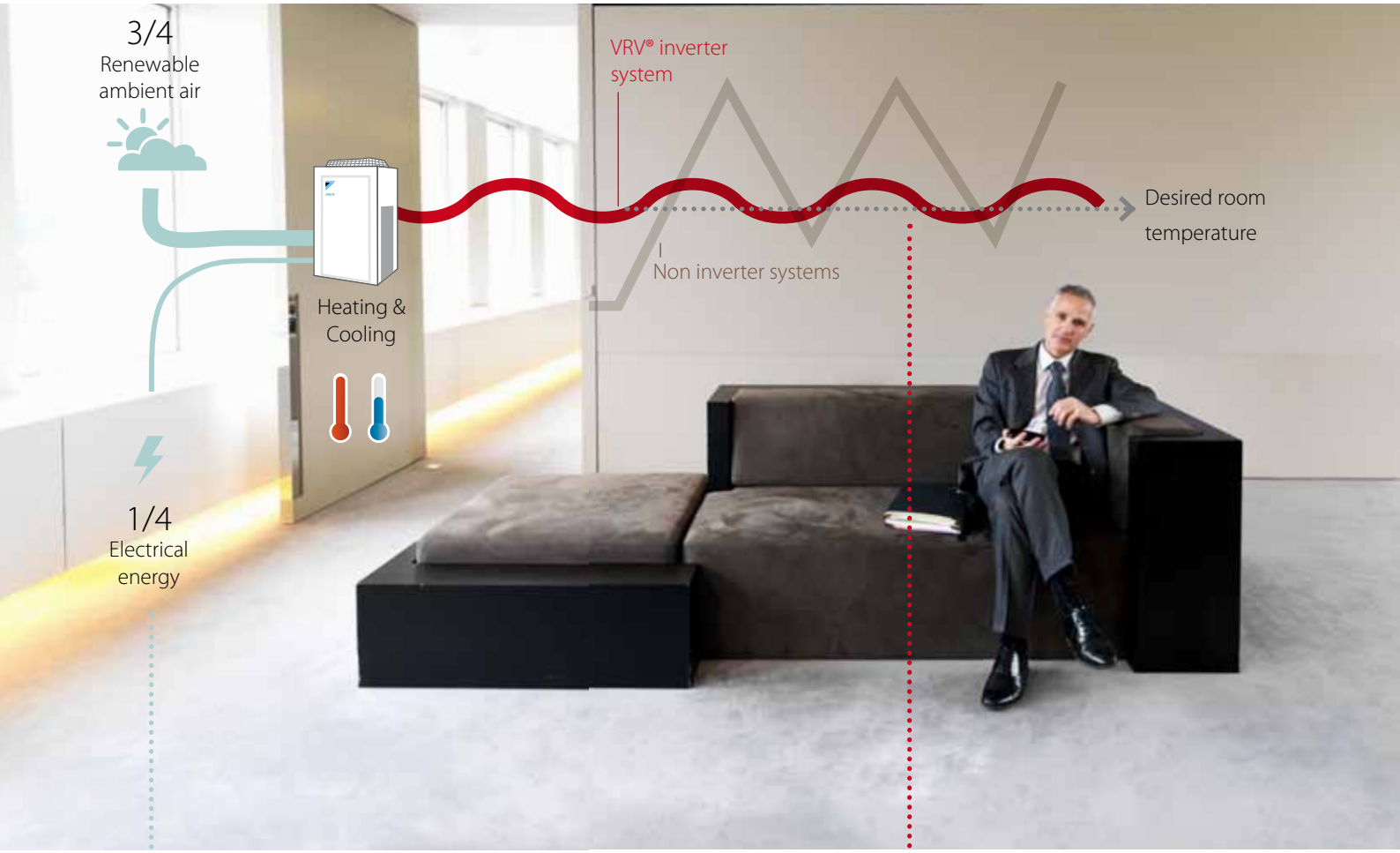
HXHD-A

EKHTS

EKHWP

Why Daikin?

For total climate control and complete peace-of-mind



Heat pump technology for maximum energy efficiency

Inverter technology for maximum comfort

Daikin is the market leader for innovation in climate control technology

With more than 85 years experience in air conditioning and 50 years in heat pumps, Daikin's passion for innovation led it to invent and then develop the variable refrigerant flow concept (the Daikin VRV® system) more than a quarter of a century ago and we are now the leading exponents of this type of integrated climate control. Daikin, in its role as a responsible market leader, continuously seeks to improve the energy efficiency and environmental friendliness of its products and to develop new ones: for example, a VRF system based on CO_2, an environmentally friendly refrigerant.

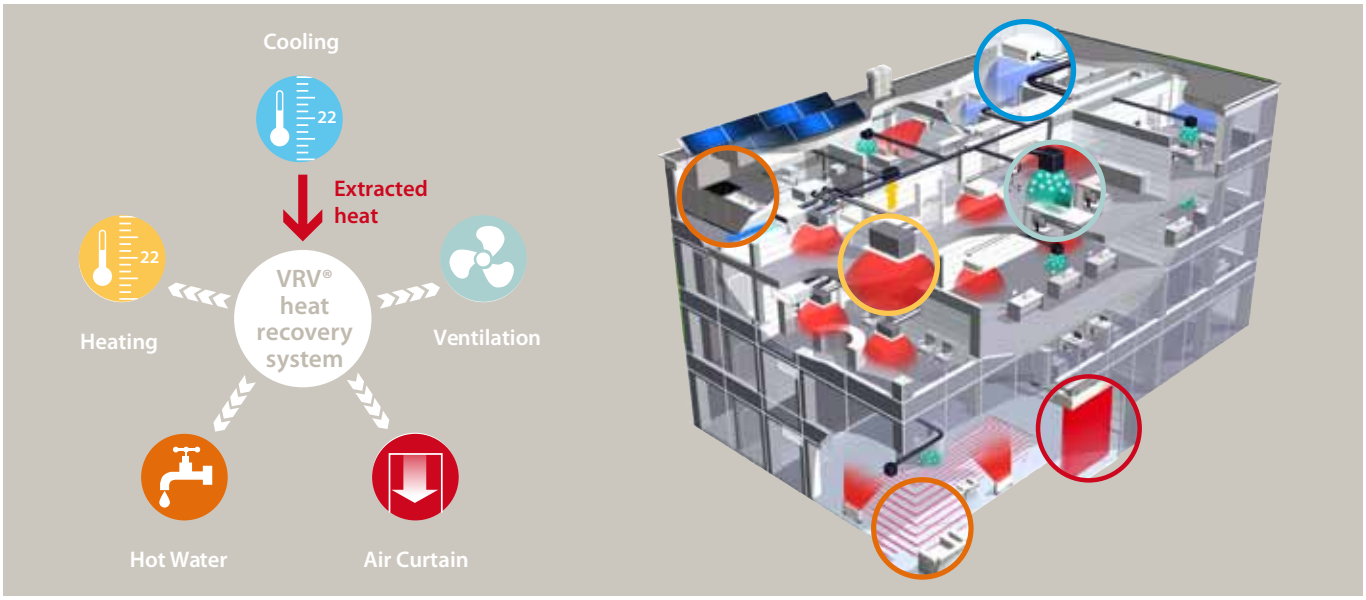
Renewable energy, reduced CO_2 emissions

Our heat pump technology is highly energy efficient as it uses renewable energy from the outdoor air to drive the heating process, without the need for a secondary heating system. This technology delivers high output for low input, leading to a direct saving in CO_2 emissions and running costs.

The Daikin VRV® uses advanced heat recovery technology to extract heat from cooled areas and then reuses it to warm other areas or create hot water, thus enabling it to heat and cool different parts of the building at the same time.

Total Solution Concept,

Heat recovery for maximum energy efficiency

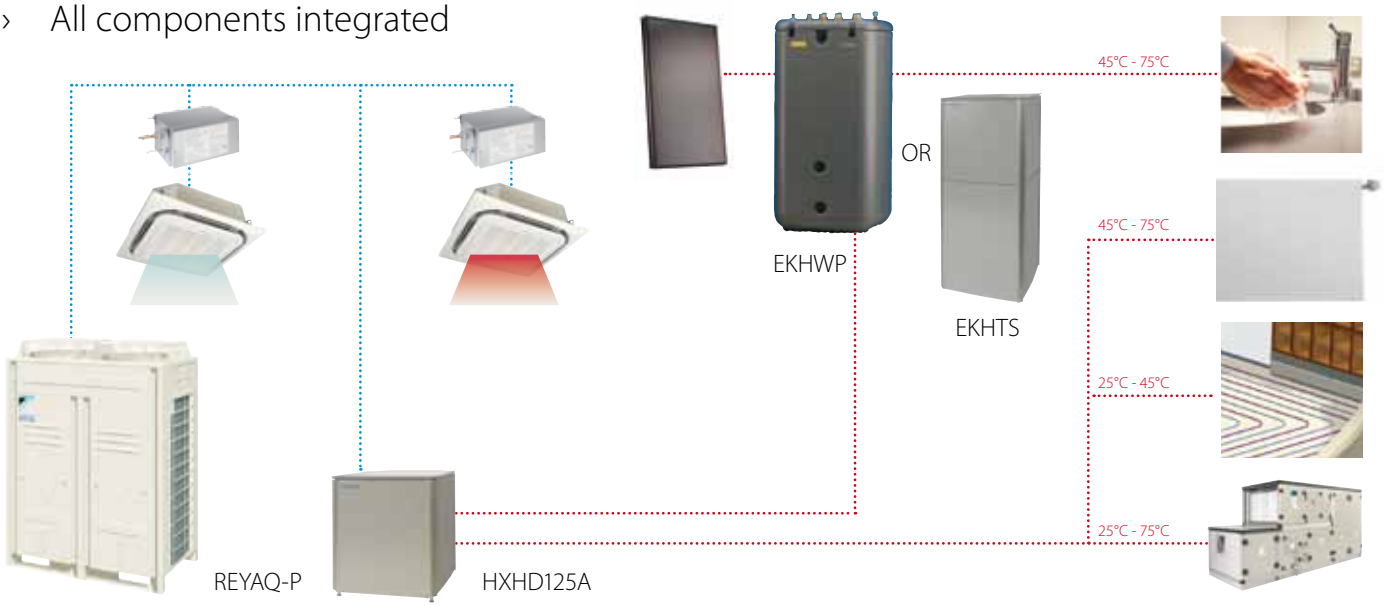


Daikin has been the market leader in variable refrigerant flow systems for the last twenty-five years and benefits from a large experience in ernergy efficient hot water systems based on heat pump technology.

The Daikin VRV® total solution provides a single point of contact for the design and maintenance of your integrated climate control system. Our heat recovery approach is a year-round solution: even when the outside temperature is 0ºC or below, our total solution will still be cooling interior spaces in which people or equipment are generating heat. This heat will be recovered to produce hot water or to heat spaces that are below optimal temperature. Our modular units enable you to select the right mix of equipment and technology to ensure that you achieve the optimal balance of temperature, humidity and air freshness for the perfect comfort zone with maximum energy efficiency and cost effectiveness.

A highly efficient and flexible solution

› All components integrated



Features for heating only hydrobox

› Free hot water production

- Hot water is produced for free through heat recovery from spaces needing cooling. If there is not enough recovered heat available, the heating is done by heat pump technology with a 17% cost saving compared to a gas boiler.

› Plug and play installation:

- All necessary components integrated for quick connection to VRV® system.
- No need to design the water side
  - all water side components integrated (pump, filter, valves)
  - direct leaving water temperature control, no mixing valve required.

› Various control possibilities

1/ Weather dependant floating set point

When this functionality is enabled, the setpoint for the leaving water temperature will be dependant on the outside ambient temperature. At low outside temperatures, the leaving water temperature will increase to satisfy the increasing heating requirement of the building. At warmer temperatures the leaving water temperature will decrease to save energy.

2/ Thermostat control

With Daikin Altherma's user interface with integrated temperature sensor, the ideal temperature can be easily, quickly and conveniently regulated.

› Super wide operation range

Hot water production from -20 up to 43°C ambient outdoor temperature.

› No gas connection needed

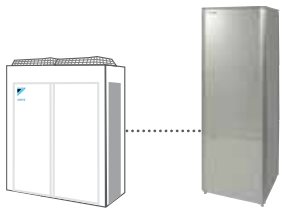
› 100% thermo dynamic energy

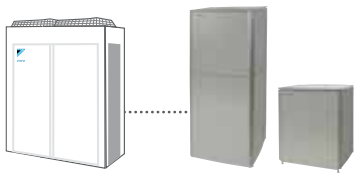
High performance in 3 steps:

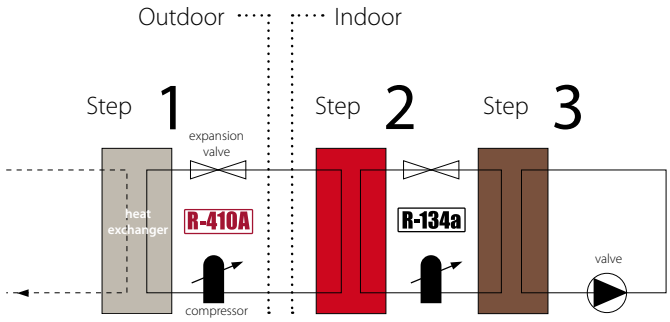
1. The outdoor unit extracts heat from the ambient outdoor air. This heat is transferred to the hydrobox via R-410A refrigerant.
2. The hydrobox receives the heat and further increases the temperature with R-134a refrigerant.
3. The heat is transferred from the R-134a refrigerant circuit to the water circuit. Thanks to the unique cascade compressor approach, water temperatures of 80° C can be reached without using an additional back-up heater.

› Stackable design for flexible installation

The indoor unit and domestic hot water tank can be stacked to save space, or installed next to each other, if only limited height is available.







Specifications

Heat recovery outdoor unit

Outdoor units					REYAQ10P	REYAQ12P	REYAQ14P	REYAQ16P
Cooling capacity			Nom.	kW	28 (1)	33.5 (1)	40 (1)	45 (1)
Heating capacity			Nom.	kW	31.5 (2)	37.5 (2)	45 (2)	50 (2)
Power input - 50Hz	Cooling		Nom.	kW	7.09	8.72	11.4	14.1
Power input - 50Hz	Heating		Nom.	kW	7.38	8.84	11.0	12.8
EER					3.95	3.84	3.51	3.19
COP					4.27	4.24	4.09	3.91
Dimensions	Unit	Height x Width x Depth		mm	1680 x 1300 x 765	1680 x 1300 x 765	1680 x 1300 x 765	1680 x 1300 x 765
Weight	Unit			kg	331	331	339	339
Maximum number of connectable indoor units					21	26	30	34
Sound power level	Cooling		Nom.	dBA	78	80	83	84
Sound pressure level	Cooling		Nom.	dBA	58	60	62	63
Operation range	Cooling		Min.~Max.	°CDB	-5~43	-5~43	-5~43	-5~43
	Heating		Min.~Max.	°CWB	-20~15.5	-20~15.5	-20~15.5	-20~15.5
	hot water production	Space heating	Min.~Max.	°CDB	-20~20/24 (3)	-20~20/24 (3)	-20~20/24 (3)	-20~20/24 (3)
		Domestic hot water	Min.~Max.	°CDB	-20~43	-20~43	-20~43	-20~43
Refrigerant				Type	R-410A	R-410A	R-410A	R-410A
Piping connections	Liquid	OD		mm	9.52	12.7	12.7	12.7
	Gas	OD		mm	22.2	28.6	28.6	28.6
	Discharge gas	OD		mm	19.1	19.1	22.2	22.2
	Piping length	OU - IU	Max.	m	100	100	100	100
	Total piping length	System	Actual	m	300	300	300	300
	Level difference	OU - IU	Max.	m	40	40	40	40
	Level difference	IU - IU	Max.	m	15	15	15	15
Power supply	Phase	Frequency	Voltage	Hz/V	3~/50/380-415	3~/50/380-415	3~/50/380-415	3~/50/380-415

1 Cooling: indoor temp. 27°CDB, 19°CWB; outdoor temp. 35°CDB; 100% connection ratio (DX indoor units)
2 Heating: indoor temp. 20°CDB; outdoor temp. 7°CDB, 6°CWB; 100% connection ratio (DX indoor units)
3 Field setting

Heating only hydrobox

Hydrobox					HXHD125A
Heating capacity			Nom	kW	14 (1)
Casing				Colour	Metallic grey
				Material	Precoated sheet metal
Dimensions	Unit	Height x Width x Depth		mm	705 x 600 x 695
Weight	Unit			kg	92
Water circuit	Piping connections diameter			inch	G 1" (female)
	Heating water system	Water volume	Min.~Max.	l	20~200
Refrigerant				Type	R-134a
Refrigerant circuit	Gas side diameter			mm	12.7
Refrigerant circuit	Liquid side diameter			mm	9.52
Sound pressure level			Nom	dBA	42 (2)
					43 (3)
Sound pressure level	Night quiet mode	Level 1		dBA	38 (2)
Operation range	Heating	Ambient	Min.~Max.	°C	-20~20/24 (4)
		Water side	Min.~Max.	°C	25~80
	Domestic hot water	Ambient	Min.~Max.	°CDB	-20~43
		Water side	Min.~Max.	°C	45~75
Power supply	Phase	Frequence	Voltage	Hz/V	1~ / 50 / 220-240

1 Heating: entering condenser water temp. 40°C; leaving condenser water temp. 45°C; ambient air temp. 7°CDB, 6°CWB
2 Sound levels are measured at: EW 55°C; LW 65°C
3 Sound levels are measured at: EW 70°C; LW 80°C
4 Field setting

Domestic hot water tank: Overview

Functions	1/ EKHTS-A	2/ EKHWP-A
Preferred application	Domestic hot water only	Domestic hot water – possibility for solar connection
Operation	The water stored in the tank is used for domestic hot water	Domestic hot water is not stored in the tank but flows through the tank's coil

1/ EKHTS – domestic hot water only

› Available in 200 and 260 litres

› Efficient temperature heat-up: from 10°C to 50°C in only 60 minutes

DOMESTIC HOT WATER TANK				EKHTS200AC	EKHTS260AC
Casing	Colour			Metallic grey	
	Material			Galvanised steel (precoated sheet metal)	
Dimensions	Unit	Height/Integrated on indoor unit/Width/Depth	mm	1,335/2,010/600/695	1,335/2,285/600/695
Weight	Unit	Empty	kg	70	78
Heat exchanger	Quantity			1	
	Tube material			Duplex steel (EN 1.4162)	
	Face area		m^2	1.56	
	Internal coil volume		l	7.5	
Tank	Water volume		l	200	260
	Material			Stainless steel (EN 1.4521)	
	Maximum water temperature		°C	75	

2/ EKHWP-A – Domestic hot water with possibility for solar connection

Solar connection

› Environmentally friendly and energy efficient
› Solar panels can produce up to 70% of the energy needed for hot water production – a major cost saving
› Specialised coatings make our solar panels highly energy efficient – all shortwave solar energy is transferred into heat
› The solar panels are charged with water only when needed for heating – avoiding the need for 'anti-freeze' protection

SOLAR COLLECTOR				EKSV26P	EKSH26P
Dimensions	Unit	HeightxWidthxDepth	mm	2,000x1,300x85	1,300x2,000x85
Weight	Unit		kg	43	
Volume			l	1.7	2.1
Surface	Outer		m^2	2.601	
	Aperture		m^2	2.364	
	Absorber		m^2	2.354	
Coating				Micro-therm (absorption max.96%, Emission ca. 5% +/-2%)	
Absorber				Harp-shaped copper pipe register with laser-welded highly selective coated aluminium plate	
Glazing				Single pane safety glass, transmission +/- 92%	
Allowed roof angle	Min.~Max.		°	15~80	
Operating pressure	Max.		bar	6	
Stand still temperature	Max.		°C	200	
Thermal performance	Zero loss collector efficiency η0		%	78.7	
	Heat loss coefficient a1		$W/m^2.K$	4,270	
	Temperature dependence of the heat loss coefficient a2		$W/m^2.K^2$	0.0070	
	Thermal capacity		kJ/K	6.5	
	Incident angle modifier	AM at 50°		0.94	
Installed position				Vertical	Horizontal

Domestic hot water tank

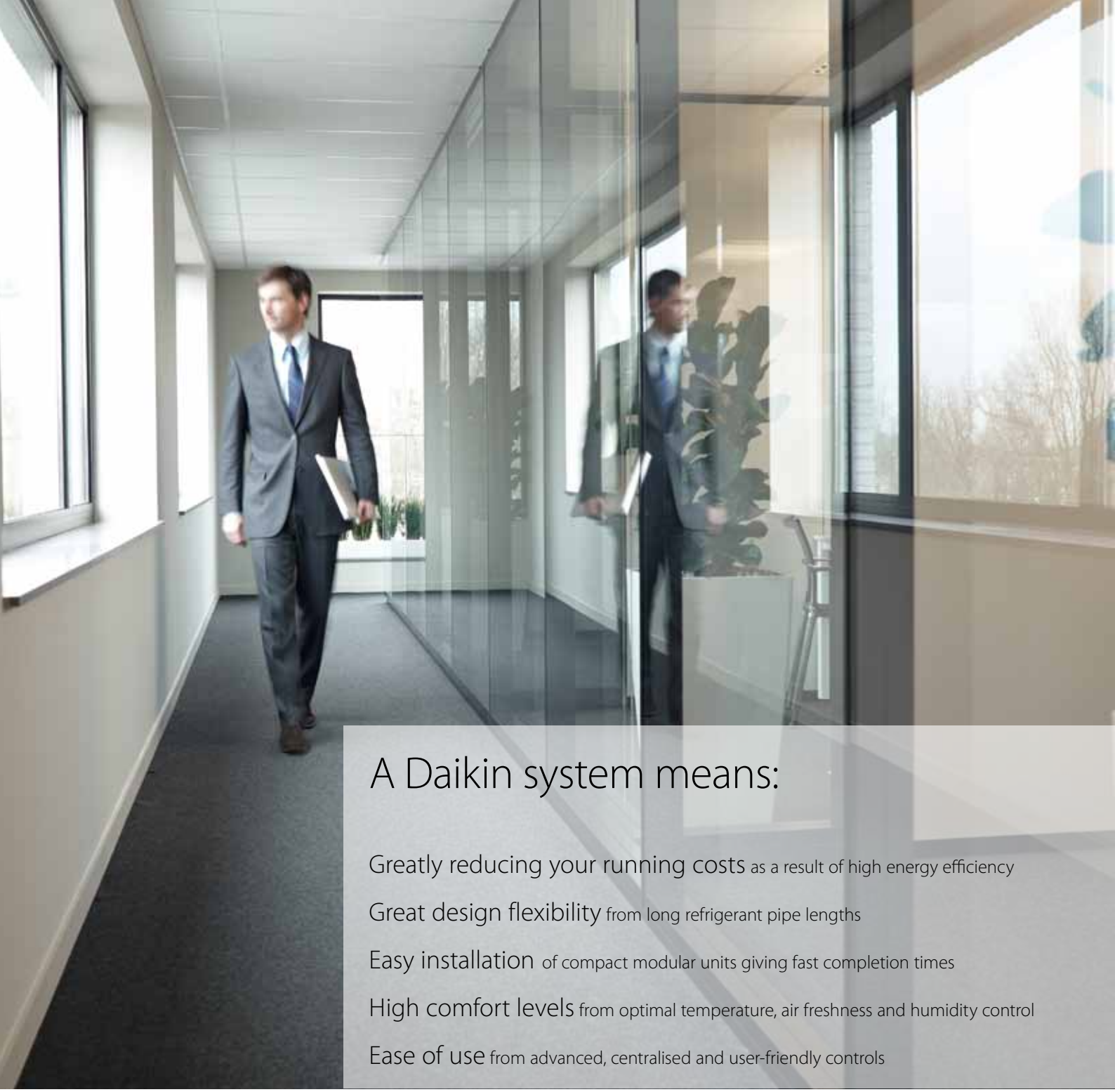
› Available in 300 and 500 litres
› (Pre-)heat the water for your heating system with solar energy

DOMESTIC HOT WATER TANK				EKHWP300A	EKHWP500A
Casing	Colour			Dust grey (RAL7037)	
	Material			Impact resistant polypropylene	
Weight	Unit	Empty	kg	59	92
Heat exchanger	Domestic hot water	Tube material		Stainless steel (DIN 1.4404)	
		Face area	m^2	5.7	5.9
		Internal coil volume	l	27.8	28.4
		Operating pressure	bar	6	
		Average specifc thermal output	W/K	2,795	2,860
	Charging	Tube material		Stainless steel (DIN 1.4404)	
		Face area	m^2	2.5	3.7
		Internal coil volume	l	12.3	17.4
		Average specifc thermal output	W/K	1,235	1,809
	Auxiliary solar heating	Tube material		Stainless steel (DIN 1.4404)	
		Face area	m^2	-	1.0
		Internal coil volume	l	-	5
		Average specifc thermal output	W/K	-	313
Tank	Water volume		l	300	500
	Maximum water temperature		°C	85	

Pump station

› The pump station ensures that the correct water pressure and flow rates are maintained for optimum efficiency

Solar connection				EKSRPS3
Dimensions	Unit	HeightxWidthxDepth	mm	332 x 230 x 145
Control	Type			Digital temperature difference controller with plain text display
	Power consumption		W	2
Mounting				On side of tank
Sensor	Solar panel temperature sensor			Pt1000
	Storage tank sensor			PTC
	Return flow sensor			PTC
	Feed temperature and flow sensor			Voltage signal (3.5V DC)



A Daikin system means:

Greatly reducing your running costs as a result of high energy efficiency

Great design flexibility from long refrigerant pipe lengths

Easy installation of compact modular units giving fast completion times

High comfort levels from optimal temperature, air freshness and humidity control

Ease of use from advanced, centralised and user-friendly controls

In all of us, a green heart

Daikin's unique position as a manufacturer of air conditioning equipment, compressors and refrigerants has led to its close involvement in environmental issues. For several years Daikin has had the intention to become a leader in the provision of products that have limited impact on the environment. This challenge demands the eco design and development of a wide range of products and an energy management system, resulting in energy conservation and a reduction of waste.

VRV® products are not within the scope of the Eurovent certification programme.

FSC

ECPEN11-209

Daikin products are distributed by:

ECPEN11-209 • 01/11 • Copyright Daikin
Printed on non-chlorinated paper. Prepared by **La Movida**, Belgium
Resp. Ed.: Daikin Europe N.V., Zandvoordestraat 300, B-8400 Oostende