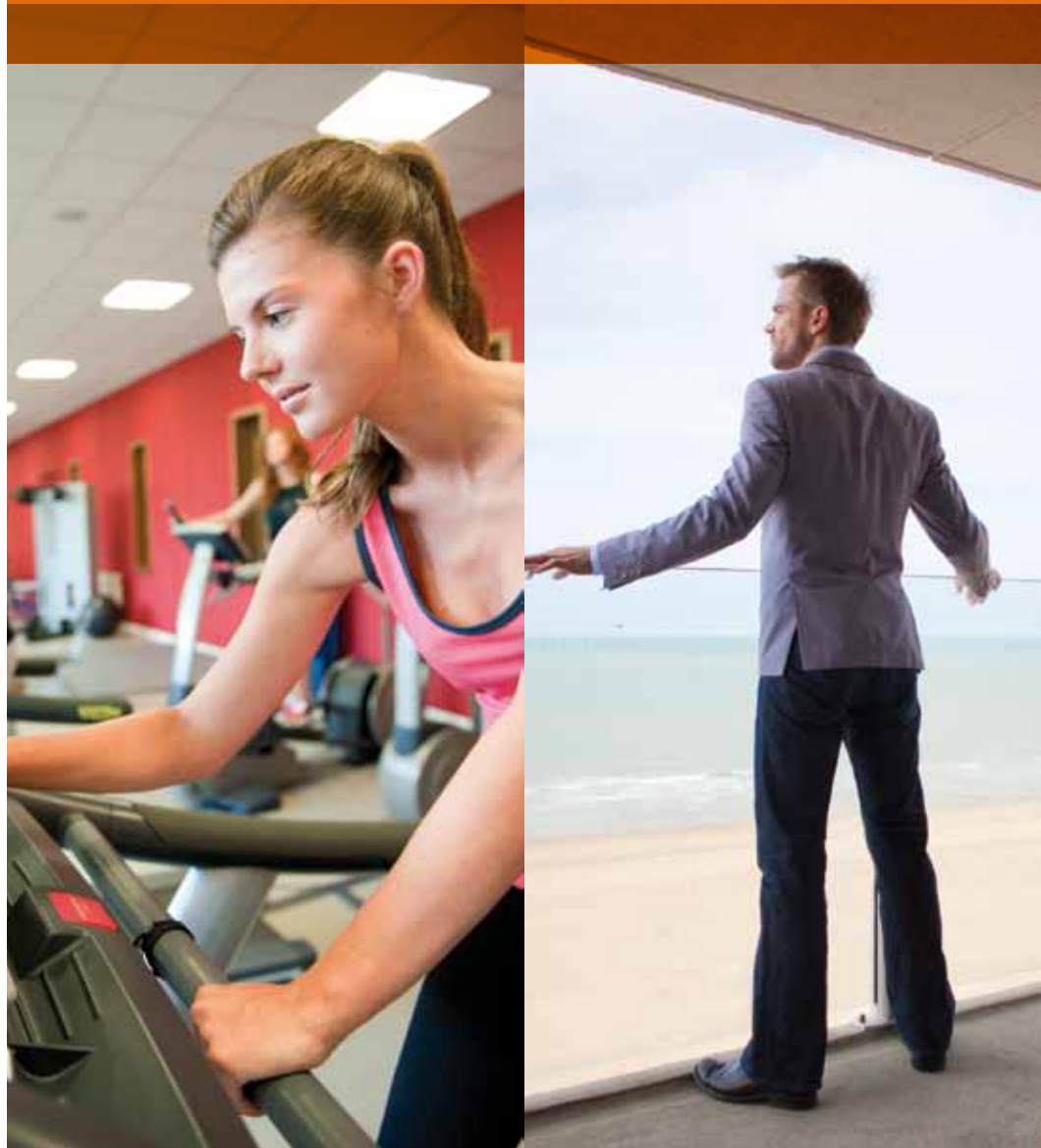


DAIKIN ALTHERMA FLEX TYPE

Residential and Commercial applications

- ✓ Top comfort
- ✓ Heating,
hot water and
cooling
- ✓ Low CO₂
emissions
- ✓ Modular
system



www.daikinaltherma.eu

DAIKIN ALTHERMA
FLEX TYPE:
A CENTRALISED
HEATING,
HOT WATER AND
COOLING SYSTEM
FOR RESIDENTIAL
AND COMMERCIAL
APPLICATIONS



For the last 50 years, we have been the **LEADING INNOVATOR** in the heat pump industry. Because of this constant focus on innovation, we were the first to deliver **TOTAL CLIMATE CONTROL** that **RESPECTS THE ENVIRONMENT**, is highly **ENERGY EFFICIENT** and **COST EFFECTIVE**.

The Daikin Altherma Flex Type range is the direct result of those years of research, innovation and continuous quality improvement. Always at the leading edge of climate control, we spend our time listening to what our customers want and then delivering tomorrow's technology today. The Daikin Altherma Flex Type range is a mix of intelligent solutions and advanced control technologies that provides the ultimate in controllable comfort for residential and commercial buildings while respecting the environment through reduced energy consumption.

As the provider of choice for those who only want the best in climate control, we **CONTINUOUSLY INNOVATE SO THAT OTHERS NEED TO FOLLOW OUR LEAD**.

DURABLE & EFFICIENT ENERGY SOLUTIONS FOR **RESIDENTIAL APPLICATION**

Introduction	5
Efficient climate control for apartment buildings	6
Two Daikin technologies combined	8
Daikin heat pump convector	10
More benefits of advanced design	11
Daikin Altherma Flex Type: a typical installation	12
Daikin Altherma Flex Type: the flexible heating solution	14
Specifications	30



HEATING HOT WATER COOLING

ONLY ONE SYSTEM

Providing total climate control in an apartment building or in collective housing presents a particular challenge because a large number of rooms simultaneously need heating or cooling.

Daikin Altherma Flex Type is designed with this challenge in mind. Each outdoor unit can be linked to up to ten indoor units, with each indoor unit being individually controlled, to make sure the perfect temperature is maintained at all times. In addition, by making optimal use of VRV®, cascade technology and heat pump technologies, the system efficiently generates hot water in both heating and cooling modes.

EFFICIENT CLIMATE CONTROL FOR APARTMENT BUILDINGS AND COLLECTIVE HOUSING

Energy efficient heat pump technology

Daikin Altherma Flex Type is today's answer to current and future issues of increasing energy costs and unacceptable high environmental impact associated with conventional heating systems. With Daikin Altherma Flex Type, 2/3 of the generated heat comes from the air, which is recognised as a renewable energy source that is free of charge! Daikin Altherma Flex Type achieves a typical seasonal COP of 3 in the moderate Western and central European climate. Compared to an oil boiler, this results in:

- Up to 36% less running costs*
- Up to 71% reduction of CO₂ emissions*
- Up to 35% reduction in primary energy use*

* Data calculated taking in account Belgian conditions: Seasonal COP of 3, average energy prices 2007-2010, CO₂ emission factor for electricity production

Modular system

One or more inverter-controlled outdoor heat pump units can provide heating, cooling and hot water. Outdoor units between 23 and 45 kW extract the heat from the outdoor air, raise it to an intermediate temperature and transfer this heat energy to the individual indoor units.

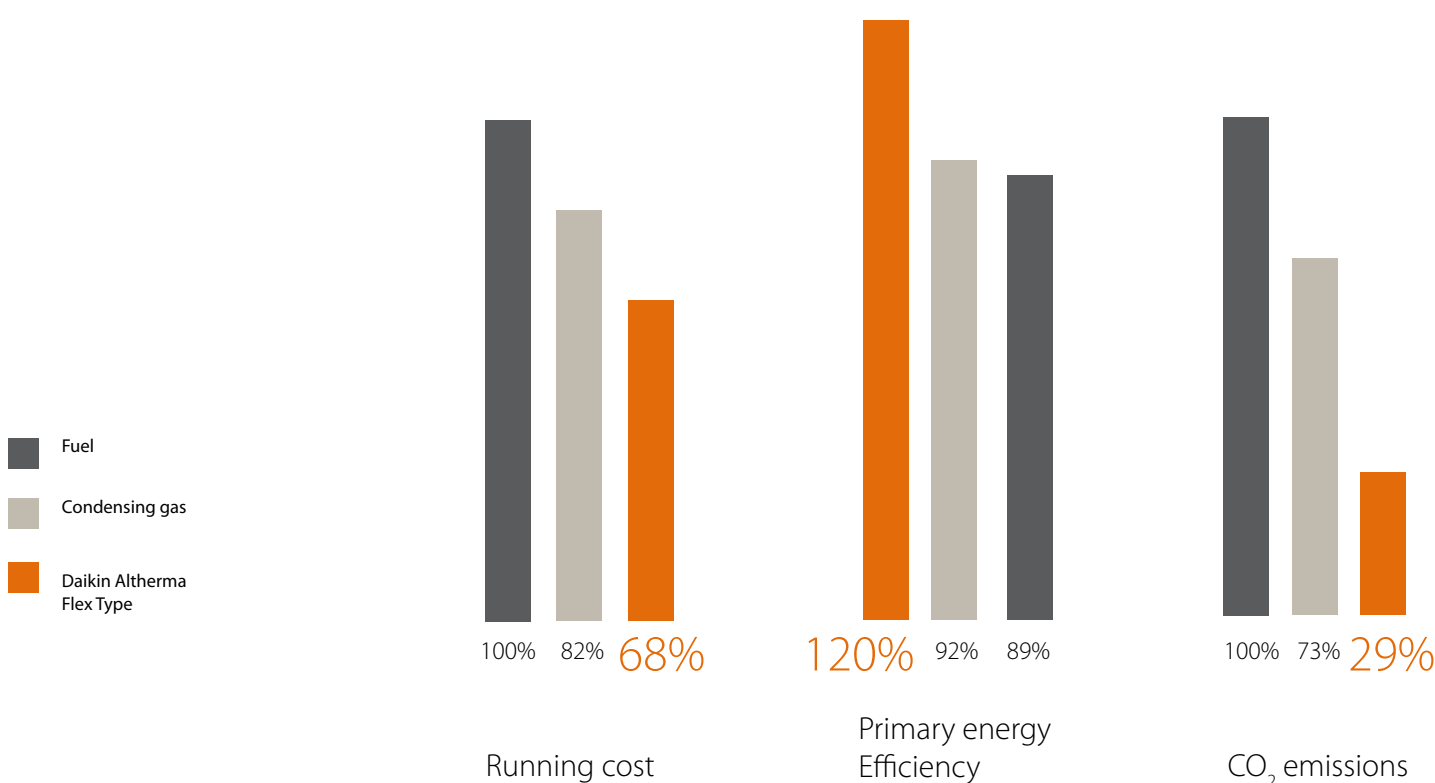
Indoor units are available in several classes (6, 9, 11, 14 and 16 kW), ensuring optimum efficiency. One outdoor unit can be combined with up to ten indoor units. Multiple outdoor units can be installed for larger applications.

3-in-1 system

Daikin Altherma Flex Type heats, cools and produces domestic hot water:

- › Heating: leaving water temperatures up to 80° C
- › Cooling: leaving water temperatures down to 5° C
- › Hot water: tank temperatures up to 75° C

Thanks to the heat recovery function, the system can heat up the hot water tank up to 60°C with rejected heat from cooling operation.



CONCEPT DESCRIPTION



Outdoor

One or more indoor and outdoor units



1

Hot water

2

Heating

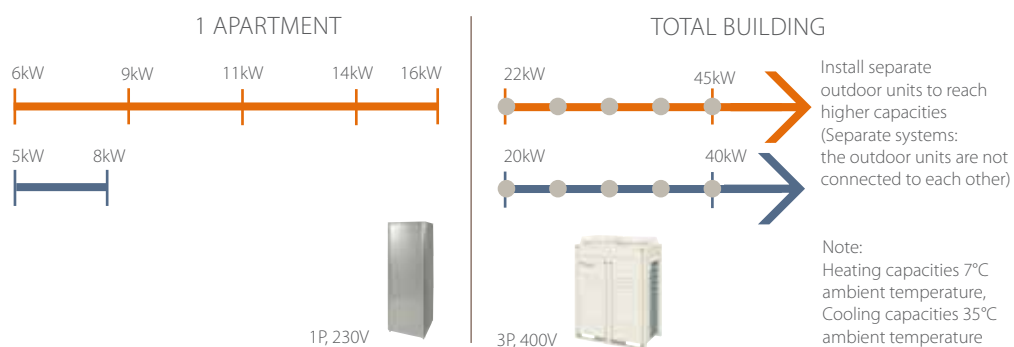
3

Cooling

One or more outdoor units
+ several indoor units
>> a modular system



Modular system



TWO DAIKIN TECHNOLOGIES COMBINED

INDOOR UNIT:

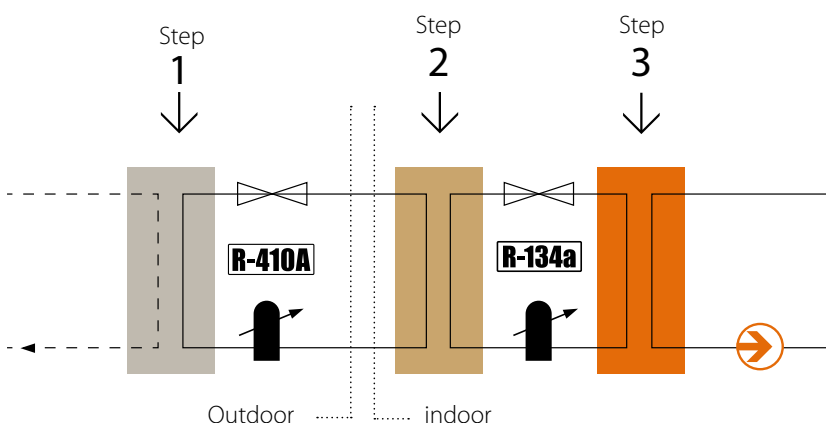
DAIKIN ALTHERMA CASCADE TECHNOLOGY

Space heating

Daikin Altherma Flex Type uses two refrigerant cycles, R-410A and R-134a, to heat the water circuit. The purpose of a cascade system is to attain or work with pressures and temperatures which cannot be reached by using only one refrigerant cycle. The aim is to get the best characteristics out of the two active cycles. The **R-410A** refrigerant circuit has excellent characteristics with respect to low evaporating temperatures, while the **R-134a** circuit has excellent characteristics for high condensing temperatures. With the cascade technology, both refrigerants are operating under their optimal conditions.

The advantages of cascade technology versus single refrigerant cycle heat pumps:

- › Wide water temperature range (25°C – 80°C): all types of heat emitters can be connected (under floor heating, fan coil units, radiators). Existing radiators can also be connected to the Daikin Altherma Flex Type system.
- › No drop of efficiency with increasing water temperatures.
- › High capacities at low ambient temperatures.
- › No electrical heater required.



Hot water heating

Thanks to the cascade technology, Daikin Altherma Flex Type can reach water temperatures of 75°C to heat up the hot water tank. This makes it a highly efficient system for the production of hot water.

- › Hot water can be produced up to 75° C, without the assistance of an electric heater
- › No electric heater required for Legionella disinfection
- › Seasonal COP of 3.0 for heating from 15° C to 60° C
- › Heat-up time from 15° to 60° C in 70 minutes (200L tank)
- › Equivalent hot water volume of 320L at 40°C (without reheat) for a 200L tank at a tank temperature of 60°C. Higher volumes of equivalent hot water are available with the 260L tank, or by using a higher tank temperature.

Cooling

The second refrigerant cycle R-134a can be bypassed to offer efficient cooling. The R-410A refrigerant cycle is reversed, and the cool water circuit can be used to cool the rooms.

- › High cooling capacities with water temperatures down to 5°C, in combination with Daikin heat pump convactor or Daikin fan coil units
- › Under floor cooling is possible, with water temperatures down to 18° C
- › Heat from cooling operation can be recovered to heat the hot water tank

High performance in 3 steps:

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

OUTDOOR UNIT: DAIKIN VRV® TECHNOLOGY

Modular flexibility

Daikin Altherma Flex Type makes use of Daikin's renowned VRV® technology. A combination of Proportional Integral Derivative controlled compressors and electronic expansion valves in the outdoor unit continuously adjusts the circulating refrigerant volume in response to load variations in the connected indoor units.

The VRV® technology allows multiple indoor units to be connected to a single outdoor unit and the indoor units to operate independently of each other, assuring total flexibility. Each apartment retains control of its own heating, hot water and cooling.

Inverter compressors

Daikin Altherma owes its remarkable low energy consumption to a unique combination of highly efficient inverter-controlled Daikin compressors with a variable operating point. This allows capacity to be exactly matched to the actual heating demand of the building. The ability to fully control the heat capacity of the outdoor unit also means maximum comfort and minimum energy consumption.

heating
down to
-20°C
↓ ambient temperature

cooling
up to
43°C
↑ ambient temperature



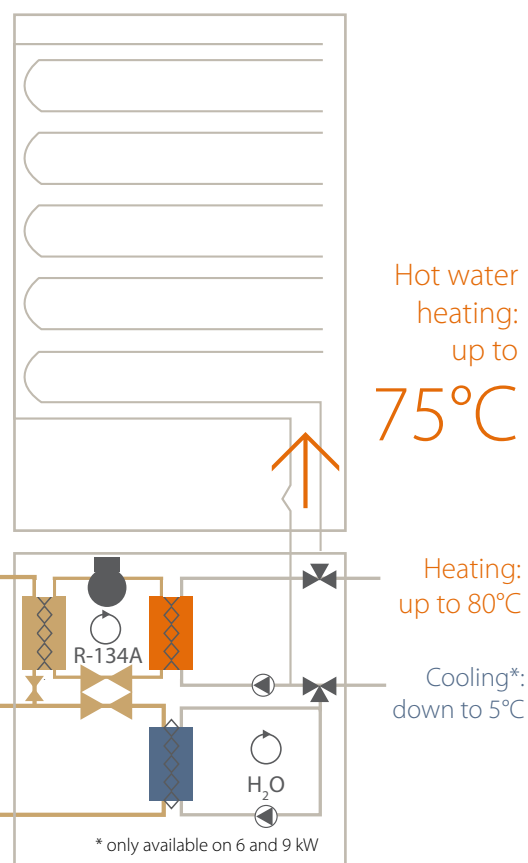
discharge

liquid

suction

R-410A

R-410A



Heat recovery

Heat absorbed while cooling one apartment, can be recovered instead of being simply released into the air. This recovered heat can be used

- › for hot water production in the same apartment
- › for space heating and hot water production in other apartments

With the heat recovery function, the available energy is maximally used, thus reducing electricity costs.

DAIKIN HEAT PUMP CONVECTOR:

THE OPTIMAL HEAT EMITTER FOR APARTMENTS

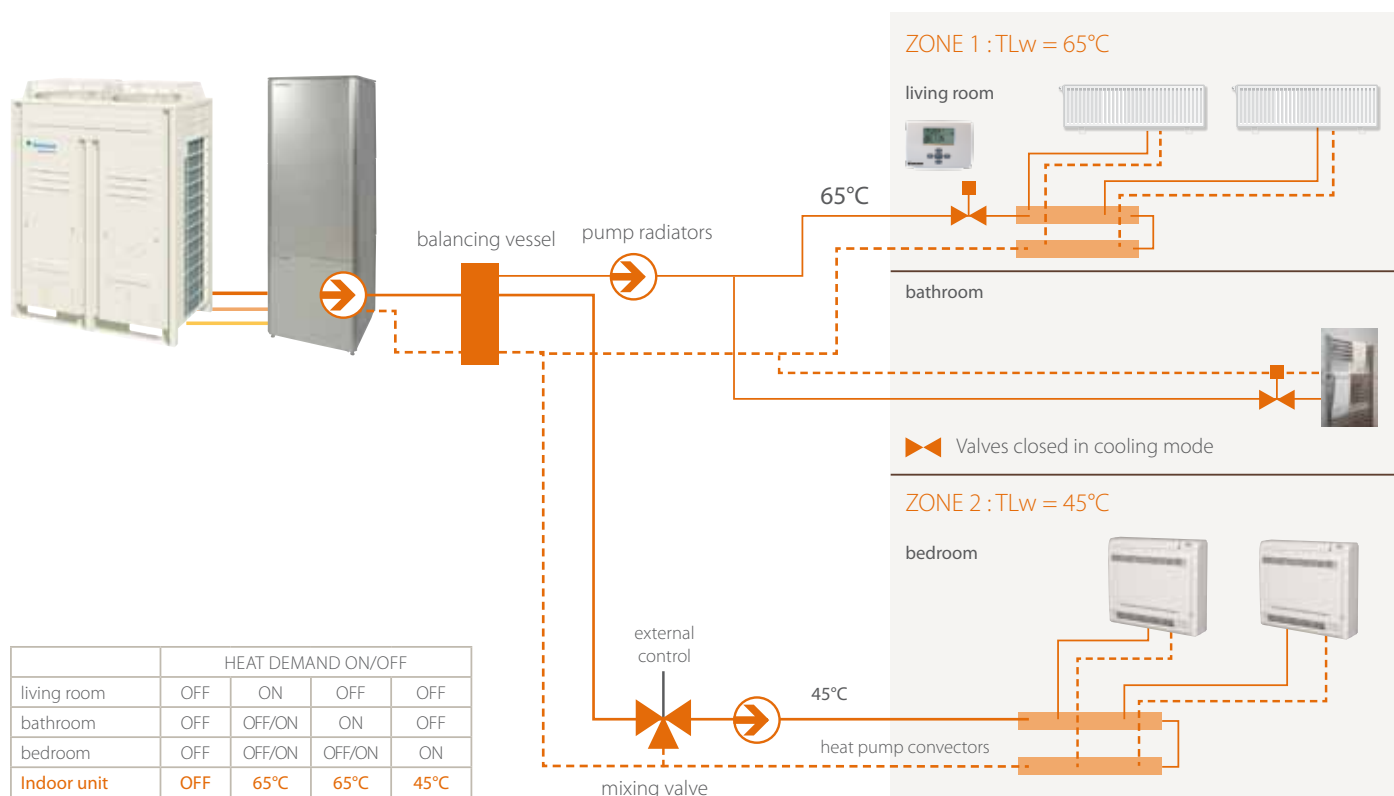
The Daikin heat pump convector operates at typical water temperatures of 45°C, which can be efficiently produced thanks to Daikin Altherma Flex Type cascade technology.

The heat pump convector is therefore the ideal heat emitter for apartment applications, providing high comfort levels:

- › Small dimensions compared to low temperature radiators: width is reduced with 2/3
- › Low sound level down to 19dB(A), ideal heating and cooling operation for bedrooms
- › High-capacity cooling with water temperatures down to 6° C



Thanks to its wide water temperature range, all type of heat emitters can be connected to Daikin Altherma Flex Type. Also, Daikin Altherma Flex Type is able to work with multiple set points, allowing a combination of different heat emitters operating at different water temperatures. The set point of the indoor unit will automatically be lowered in function of the actual demand of the various heat emitters, ensuring optimum efficiency at all times and under all conditions.



MORE BENEFITS OF ADVANCED DESIGN



MODULAR DESIGN

The modular design enables flexible and easy installation - this reduces the costs and makes maintenance easier.



SMALL FOOTPRINT

The indoor units can be stacked or set adjacent to each other. This ensures the units to fit into available small spaces so that they do not impinge on the living area.



SILENT OPERATION

Advanced materials and designs allow all the moving parts to operate as silent as possible, thus ensuring that the climate control system is barely audible.



INDIVIDUAL CONTROL

The latest integrated control technologies allow the temperature of each residential space to be individually regulated and maintained.



HIGH ENERGY EFFICIENCY GIVES LOW OPERATING COSTS

The combination of technologies, and especially heat pump technology, means that much of the heating effect comes from the ambient air. This reduces the energy consumption and lowers the operating costs.



DAIKIN ALTHERMA FLEX TYPE: A TYPICAL RESIDENTIAL INSTALLATION

Description:

Location: Ostend, Belgium

Number of floors: 8

Floor area for one apartment: 115m²

Construction year: 2008

Design condition in winter: -8°C

Heat emitters: Daikin heat pump convectors

Outdoor unit: EMRQ16AY1



Indoor units: 7x EKHVMYD50A



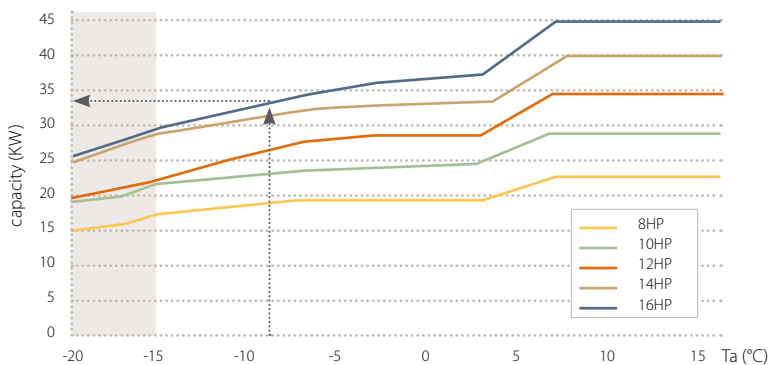
Theoretical calculation

1. Define design temperature

$$T_{\text{design}} = -8^{\circ}\text{C}$$

2. Define heat loads for each apartment and the appropriate indoor and outdoor units:

	Heat load	Indoor class	Capacity index
Apartment 7	6.0 kW	80 class	80
Apartment 6	4.5 kW	50 class	50
Apartment 5	4.5 kW	50 class	50
Apartment 4	4.5 kW	50 class	50
Apartment 3	4.5 kW	50 class	50
Apartment 2	4.0 kW	50 class	50
Apartment 1	4.5 kW	50 class	50
Total heating capacity:	32.5 kW	Total capacity index:	380



□ Heating capacity below $T_a -15^{\circ}\text{C}$ not guaranteed

$T_{\text{design}} = -8^{\circ}\text{C}$ Required heating capacity = 32.5kW

Selected outdoor unit= 16HP

3. Check the capacity index

$$\text{Connection ratio} = \frac{\text{total capacity index}}{\text{nominal capacity index}}$$

When selecting an outdoor unit, the total capacity index must be as close as possible to the nominal capacity index.

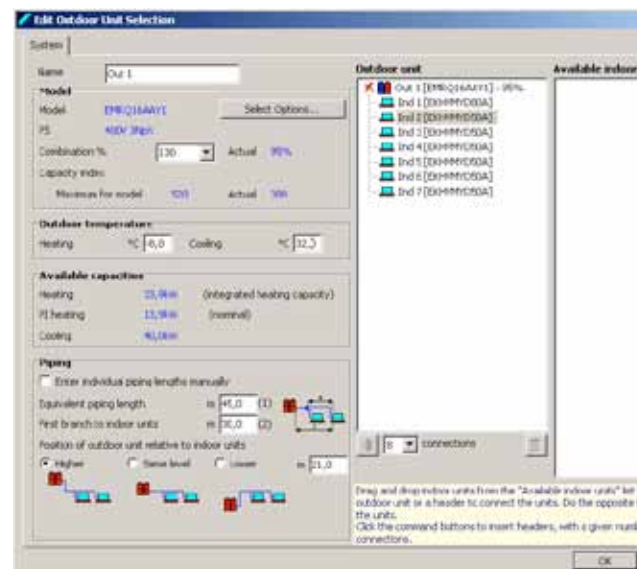
	connection ratio outdoor unit		
	50%	100%	130%
	min	nom	max
8HP	100	200	260
10HP	125	250	325
12HP	150	300	390
14HP	175	350	455
16HP	200	380	520

$$\text{Connection ratio} = \frac{380}{400} = 95\%$$

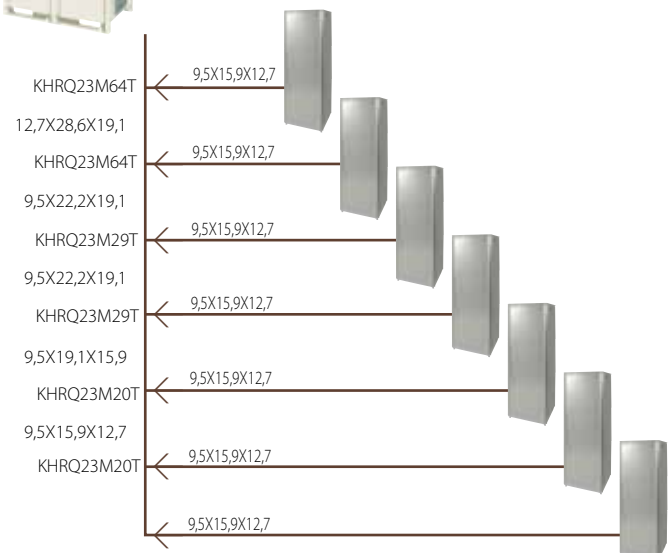
Simulation software

Daikin Altherma Flex Type simulation software allows dimensioning of a Daikin Altherma system in only a few steps. The simulation software automatically presents all the specifications required for dimensioning the whole system (in a clear report).

- › Selection of indoor units, hot water tank and options
- › Selection of appropriate outdoor unit
- › Checking piping lengths and height differences
- › Installation specifications: refrigerant piping diameters, refnet joints and headers, additional refrigerant charge, wiring diagram.



Calculation



DAIKIN ALTHERMA FLEX TYPE: THE FLEXIBLE HEATING SOLUTION

Daikin Altherma Flex Type with its innovative combination of heating, cooling and hot water production in one system, is a real added value for any APARTMENT OWNER. It is the first system for apartments and collective housing that fully allows the use of renewable energy sources.

Making use of renewable energy in the form of the heat from the outside air and recovered from the cooling cycle, the system provides energy efficient and inexpensive hot water thus reducing the heating costs in comparison to a conventional heating system. Its efficient, air-to-water heat pump technology contributes towards making today's apartment buildings more environmentally sustainable, with lower running costs, reduced CO₂ emissions, and reduced primary energy usage.

The modular design of the Daikin Altherma Flex Type allows CONSULTANTS and ARCHITECTS to incorporate the system in any development project. A typical installation includes one outdoor unit (from 23 to 45 kW) for up to ten indoor units. Multiple outdoor units can be installed for larger applications.

The outdoor unit extracts heat from the outdoor air, raises and transfers it at intermediate temperature to the individual indoor units (6, 9, 11, 14 and 16 kW). The indoor units then raise the temperature further and feed heated water to radiators, heat pump convectors or under floor heating units. If necessary, the indoor unit can also provide cooling.

REDUCE THE DEVELOPMENT AND EXECUTION TIME OF YOUR PROJECT!



IMPROVE THE COMFORT LEVELS THROUGH HEATING AND COOLING POSSIBILITIES

Daikin Altherma Flex Type combines the best of Daikin's KNOW HOW:

- › Daikin VRV® technology continuously adjusts the circulating refrigerant volume in response to load variations in the indoor units. This allows the indoor units to operate independently of each other, assuring total flexibility per apartment, with individual control of heating, hot water and cooling.
- › Highly efficient, inverter-controlled compressors, with variable operating point, optimally control the heat emission temperature, resulting in maximum comfort and minimum energy consumption.
- › Heat recovery makes optimum use of the energy consumed for cooling and reduces electricity costs.

Daikin Altherma Flex Type range is designed to be **INSTALLED QUICKLY AND FLEXIBLY**:

- › The indoor units are fully equipped with all the required hydraulic components, and can be connected directly to the heat distribution system. The hot water tanks can be stacked on the indoor units. This limits the footprint (<0.6 m² per apartment) and installation workload (quick-couplings).
- › The outdoor unit is sufficiently compact to allow easy transportation. Thanks to its lightweight construction and vibration-free operation, floors do not need to be reinforced.
- › Daikin's piping system can be installed quickly and easily thanks to its small refrigerant pipes and refnet piping options.

Daikin Altherma Flex Type guarantees **PERFECT INDOOR CLIMATE COMFORT** with heating and hot water all year round for the entire family:

- › High heating capacities, even at low ambient temperatures down to -20°C
- › High cooling capacities, in combination with the heat pump convector or fan coil units
- › Silent operation, thanks to its low-noise inverter compressor

This system provides optimal comfort for each apartment building, offering heating, cooling and hot water using our renowned VRV® and cascade heat pump technology. This 3-in-1 solution allows for flexible integration in property development projects and contributes to timely completion of your project.

A RENEWABLE SOLUTION FOR COMMERCIAL APPLICATION NEW ←

Introduction	17
Efficient climate control for commercial application	18
Fit for purpose hot water on demand	19
Two Daikin technologies combined	20
Several configurations are possible to suit any commercial application	22
More benefits to consultants installers and end users	28
Specifications	30



HEATING HOT WATER COOLING

ONLY ONE SYSTEM

Providing total climate control in places as SCHOOLS, HOSPITALS, LIBRARIES, SPAS, FITNESS CENTRES AND HOTELS presents particular challenges. Most of the time there are a large number of rooms of greatly varying sizes that require heating and cooling while, at the same time large volumes of hot water are also needed.

Daikin Altherma Flex Type is designed with this challenge in mind. Each outdoor unit can be linked to up to ten indoor units, with each indoor unit being individually controlled, to make sure the perfect temperature is maintained at all times. In addition, by making optimal use of VRV®, cascade technology and heat pump technologies, the system efficiently generates hot water in both heating and cooling modes.

EFFICIENT CLIMATE CONTROL FOR COMMERCIAL APPLICATION

Energy efficient heat pump technology

Daikin Altherma Flex Type is today's answer to current and future issues of increasing energy costs and unacceptable environmental impact associated with conventional heating systems for commercial applications such as schools, hospitals, spas, gyms and hotels. With Daikin Altherma Flex Type, 2/3 of the generated heat comes from the air, which is a renewable energy source that is free of charge! Daikin Altherma Flex Type achieves a typical seasonal COP of 3 in the moderate Western and central European climate. Compared to an oil boiler, this results in:

- Up to 36% less running costs*
- Up to 71% reduction of CO₂ emissions*
- Up to 35% reduction in primary energy use*

* Data calculated taking in account Belgian conditions: SCOP of 3, average energy prices 2007-2010, CO₂ emission factor for electricity production

Modular system

One or more inverter-controlled outdoor heat pump units can provide heating, cooling and hot water. Outdoor units between 23 and 45 kW extract the heat from the outdoor air, raise it to an intermediate temperature and transfer this heat energy to the individual indoor units.

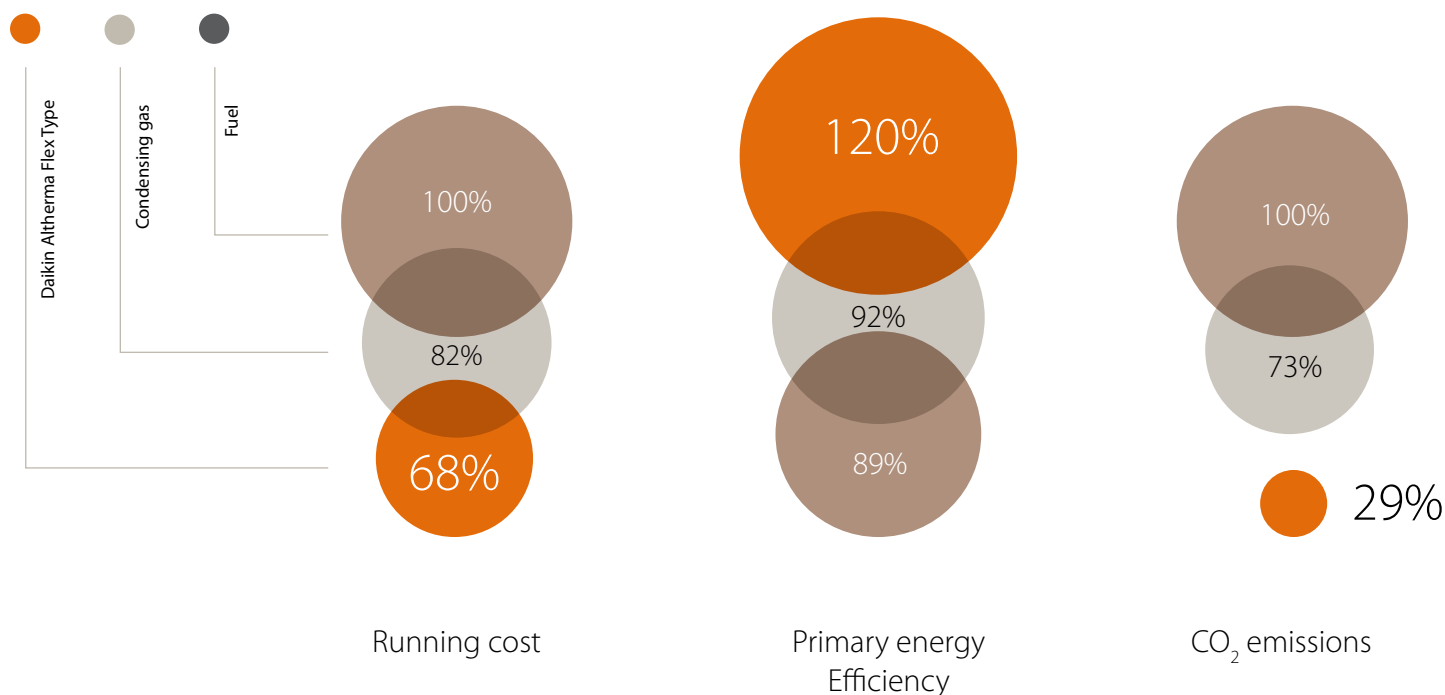
Indoor units are available in several classes (6, 9, 11, 14 and 16 kW), ensuring optimum efficiency. One outdoor unit can be combined with up to ten indoor units. Multiple outdoor units can be installed for larger applications.

3-in-1 system

Daikin Altherma Flex Type heats, cools and produces domestic hot water:

- › Heating: leaving water temperatures up to 80° C
- › Cooling: leaving water temperatures down to 5° C
- › Hot water: tank temperatures up to 75° C

Thanks to the heat recovery function, the system can heat up the hot water tank up to 60°C with rejected heat from cooling operation.



FIT FOR PURPOSE

HOT WATER ON DEMAND



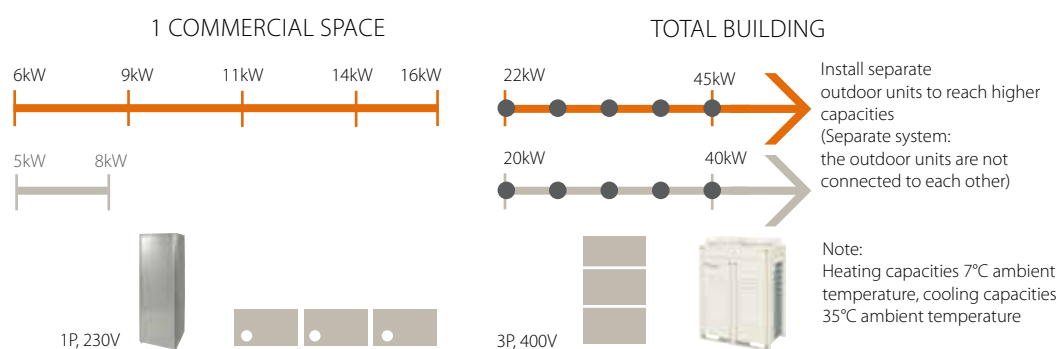
The challenges for a fitness center:

- › Large exercise rooms with high levels of heat being generated requiring rigorous climate control throughout the space
- › High 'on demand' hot water usage in the changing rooms

The solution:

Daikin Altherma Flex Type with its modular and flexible approach.

Modular system



TWO DAIKIN TECHNOLOGIES COMBINED

INDOOR UNIT:

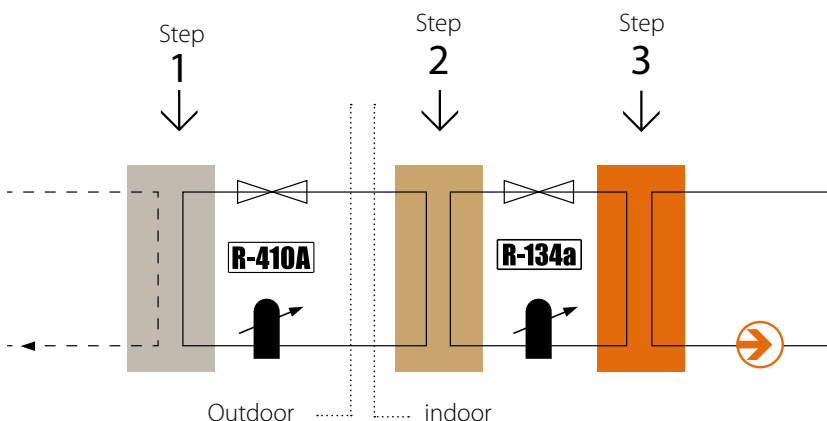
DAIKIN ALTHERMA CASCADE TECHNOLOGY

Space heating

Daikin Altherma Flex Type uses two refrigerant cycles, R-410A and R-134a, to heat the water circuit. The purpose of a cascade system is to attain or work with pressures and temperatures which cannot be reached by using only one refrigerant cycle. The aim is to get the best characteristics out of the two active cycles. The **R-410A** refrigerant circuit has excellent characteristics with respect to low evaporating temperatures, while the **R-134a** circuit has excellent characteristics for high condensing temperatures. With the cascade technology, both refrigerants are operating under their optimal conditions.

The advantages of cascade technology versus single refrigerant cycle heat pumps:

- › Wide water temperature range (25°C – 80°C): all types of heat emitters can be connected (under floor heating, fan coil units, radiators). Existing radiators can also be connected to the Daikin Altherma Flex Type system.
- › No drop of efficiency with increasing water temperatures.
- › High capacities at low ambient temperatures.
- › No electrical heater required.



Hot water heating

Thanks to the cascade technology, Daikin Altherma Flex Type can reach water temperatures of 75°C to heat up the hot water tank. This makes it a highly efficient system for the production of hot water.

- › Hot water can be produced up to 75° C, without the assistance of an electric heater
- › No electric heater required for Legionella disinfection
- › Seasonal COP of 3.0 for heating from 15° C to 60° C
- › Heat-up time from 15° to 60° C in 70 minutes (200L tank)
- › Equivalent hot water volume of 320L at 40°C (without reheat) for a 200L tank at a tank temperature of 60°C. Higher volumes of equivalent hot water are available with the 260l tank, or by using a higher tank temperature.

Cooling

The second refrigerant cycle R-134a can be bypassed to offer efficient cooling. The R-410A refrigerant cycle is reversed, and the cool water circuit can be used to cool the rooms.

- › High cooling capacities with water temperatures down to 5°C, in combination with Daikin heat pump convactor or Daikin fan coil units
- › Under floor cooling is possible, with water temperatures down to 18° C
- › Heat from cooling operation can be recovered to heat the hot water tank

High performance in 3 steps:

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

OUTDOOR UNIT: DAIKIN VRV® TECHNOLOGY

Modular flexibility

Daikin Altherma Flex Type makes use of Daikin's renowned VRV® technology. A combination of Proportional Integral Derivative controlled compressors and electronic expansion valves in the outdoor unit continuously adjusts the circulating refrigerant volume in response to load variations in the connected indoor units.

The VRV® technology allows multiple indoor units to be connected to a single outdoor unit and the indoor units to operate independently of each other, assuring total flexibility.

Inverter compressors

Daikin Altherma owes its remarkable low energy consumption to a unique combination of highly efficient inverter-controlled Daikin compressors with a variable operating point. This allows capacity to be exactly matched to the actual heating demand of the building. The ability to fully control the heat capacity of the outdoor unit also means maximum comfort and minimum energy consumption.

heating
down to
-20°C
↓ ambient temperature

cooling
up to
43°C
↑ ambient temperature



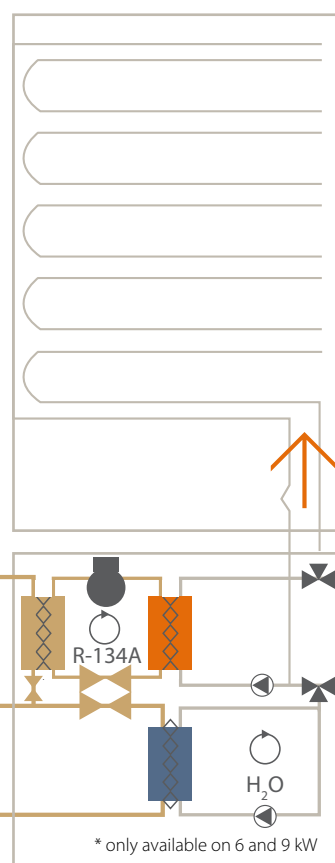
discharge

liquid

suction

R-410A

R-410A



Hot water
heating:
up to
75°C

Heating:
up to 80°C

Cooling*:
down to 5°C

* only available on 6 and 9 kW



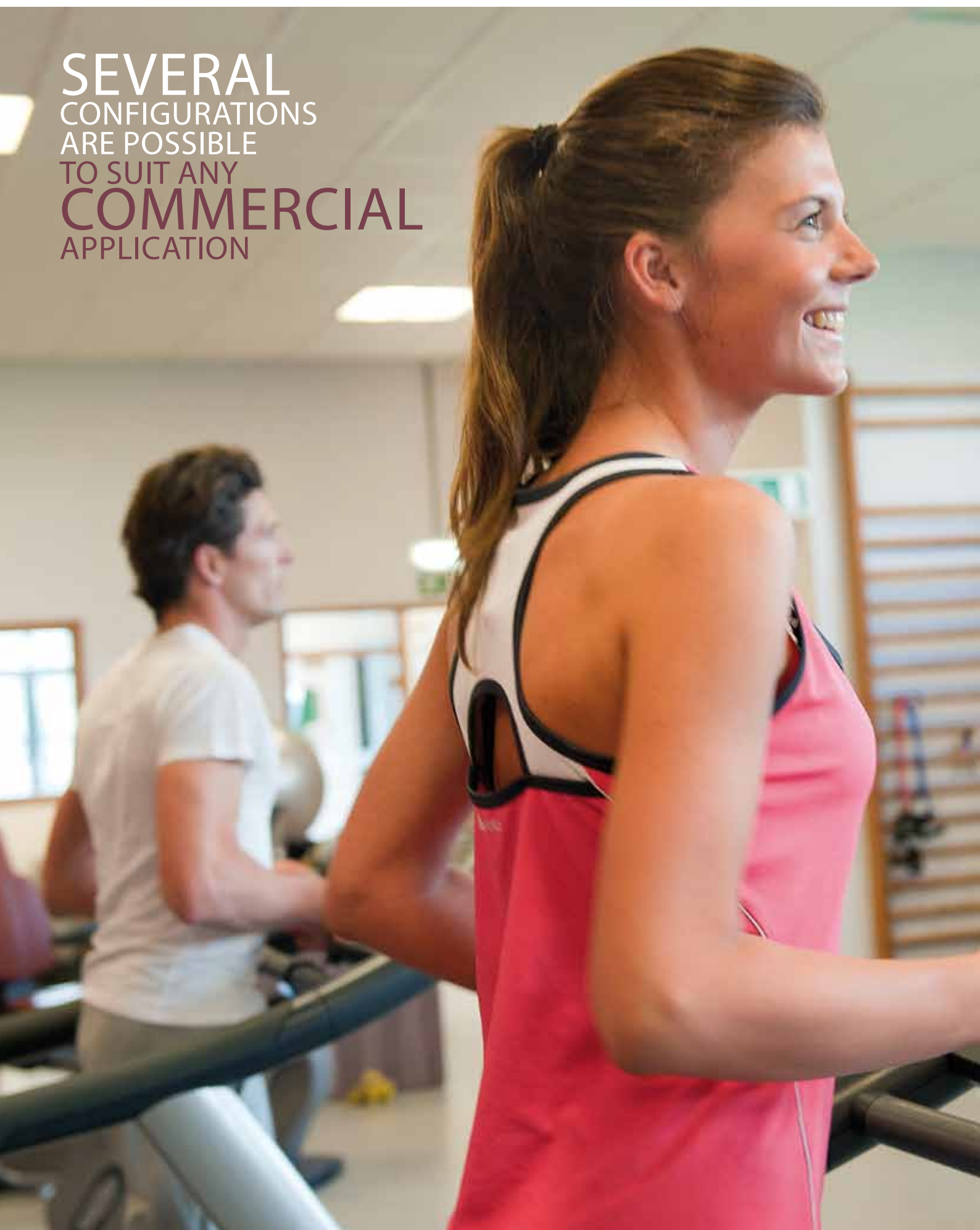
Heat recovery

Heat absorbed while cooling one area, can be recovered instead of being simply released into the air. This recovered heat can be used in another area:

- › for hot water production
- › for space heating and hot water production

With the heat recovery function, the available energy is maximally used, thus reducing electricity costs.

SEVERAL
CONFIGURATIONS
ARE POSSIBLE
TO SUIT ANY
COMMERCIAL
APPLICATION





→ The perfect heating system

In places that require heating - rather than cooling - such as hospitals, fitness centres and schools, Daikin Altherma Flex Type can be configured to provide controllable heating via radiators, heat pump convectors and under floor heating. This means a range of temperatures needs to be available from 35°C for under floor heating up to 80°C for radiators. To do this cost effectively with minimal energy usage a combination of heat pumps with cascade technology is the ideal solution.

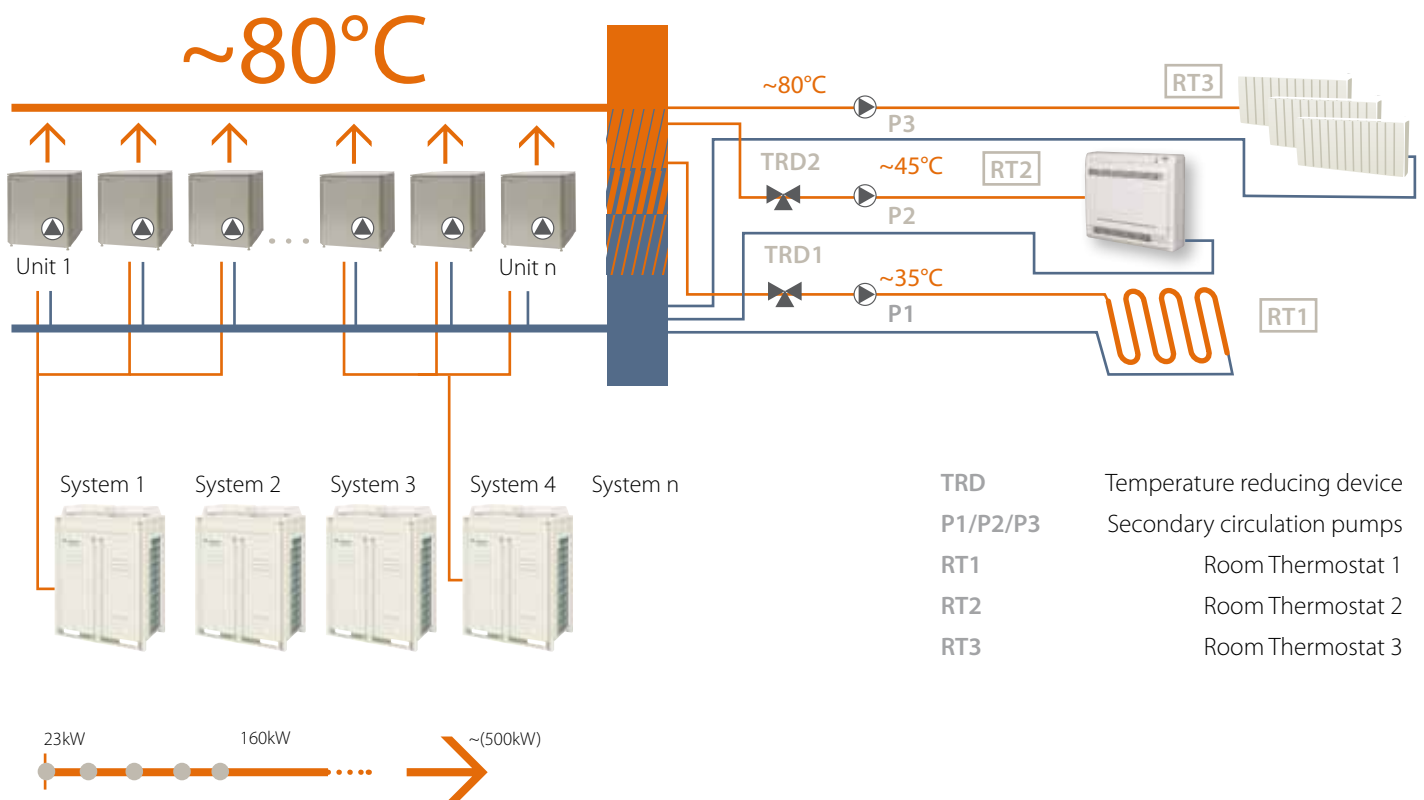


Indoor unit



MULTIPLE T° ZONES

radiators ~80°C
heat pump convectors ~45°C
under floor heating ~35°C



HOT WATER

ON DEMAND
WITH SHORT REHEAT TIME
OR PEAK
DEMAND
WITH LONGER
REHEAT TIME

→ Hot water production

Storage operation

At a pre-programmed time of the day, during low energy tariff periods, the indoor unit will heat up the hot water tank to a high storage temperature of about 75°C.

Reheat operation

To guarantee sufficient hot water throughout the day, the indoor unit will keep the tank at the pre-set reheat temperature.

Tank volume according to your needs

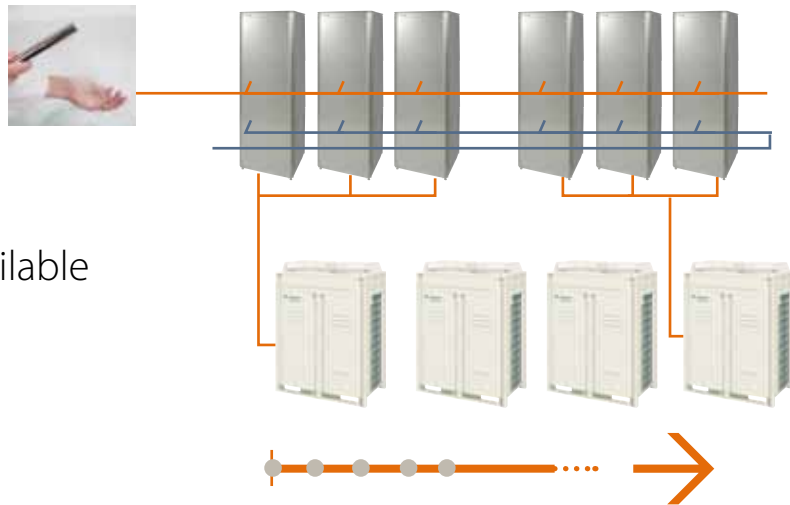
Sometimes very large volumes of hot water are needed. That is why the Daikin Altherma Flex Type can be connected to all tank volumes. In order to have a correct dimensioning of your specific hot water requirements, contact your local dealer.



→ Hot water production

Example 1

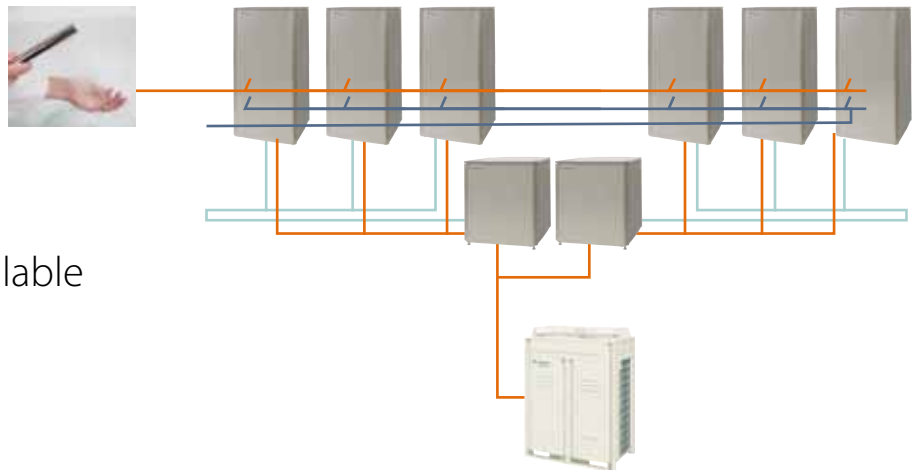
- 6x EKHTS260 at 70°C
- 6x 500l water at 40°C available
- 1 unit per tank installed
- short reheat time



OR

Example 2

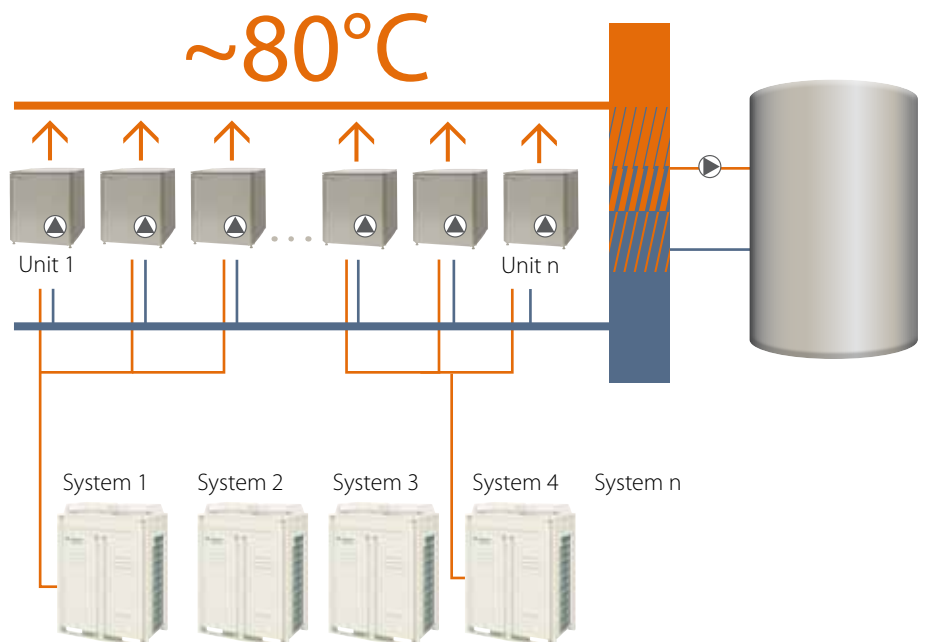
- 6x EKHTS260 at 70°C
- 6x 500l water at 40°C available
- 1 unit per 3 tanks installed
- longer reheat time



OR

Example 3

- All flexibility
- Whatever hot volumes required
- Whatever reheat time required



HEATING HOT WATER AND COOLING, ACCORDING TO YOUR NEEDS



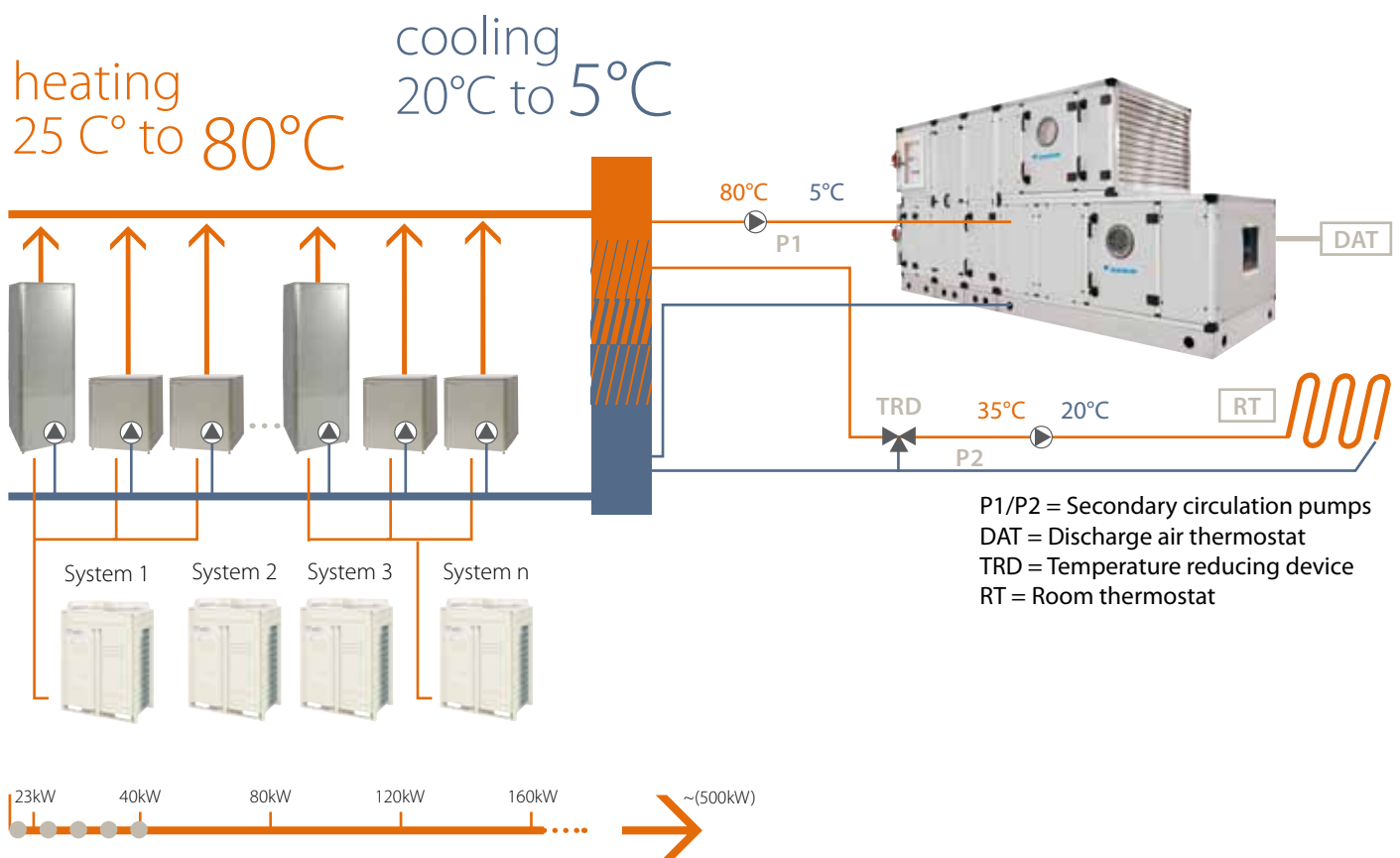


→ Cooling

Each space in the building has its own thermostat that is linked to the main control panel. With the main control panel, the required optimal temperatures for each space can be set and monitored by activating indoor units in the required mode. As the heat pump only produces the highest (heating) or lowest (cooling) desired temperature. The energy consumption and operating costs will be reduced.

When high capacities are needed for cooling, an air handling unit can be added to the system.

3 IN 1 SYSTEM



MORE BENEFITS TO CONSULTANTS, INSTALLERS AND END USERS





Cascade technology – high efficiency up to 80°C

The use of cascade technology allows the system to work very efficiently over a wide temperature range right up to 80°C. The highest temperature produced is that which is required by the units during operation and this ensures that extra energy is not consumed beyond the need at the time.

Quick heat up time

The combination of heat pump and cascade technology allows for rapid heat up times, not only in terms of space heating but also for hot water – this can be particularly important in applications, such as fitness centres, where spaces with low heating demand are counter-balanced by spaces with high peak demand. The heat from one area can be recovered, instead of releasing it to the outside air, and can be 'reused' for heating or hot water production thus reducing the heat up time and so lowering operating costs.

Modular Design

Daikin Altherma Flex Type makes use of Daikin's renowned technology. Also, multiple indoor units can be connected to a single outdoor unit. This allows the indoor units to operate independently of each other, assuring total flexibility, and total climate control with temperatures set at the optimal values for the particular space.

Reduce the development and execution time of your project

By making use of our selection and dimensioning tools, it is easy to design a single solution for heating, cooling and hot water. Our advanced piping design and the elimination of exhaust systems allows for easy integration into any building thus saving on installation time and adding value to the project.

Quick installation!

Our systems are dispatched from the factory with all the hydraulic components pre-fitted and ready to be connected to the external piping. This makes them quicker and easier to install and so saves you time and the need for on-site configuration, especially when multiple elements are involved. Installing hot water tanks on top of the system's indoor units using our plug-and-play functionality can save additional time and the elimination of the need for a chimney or other exhaust fitting avoids additional work.

Use clean energy

The use of advanced heat pump technology that captures heat from the air can reduce the energy consumed by up to 75%. This saves on heating costs and reduces the environmental impact of the system while optimal performance in hot water production, heating and even cooling is retained.

SPECIFICATIONS



Indoor unit

			EKHVMRD50A	EKHVMRD80A	EKHVMYD50A	EKHVMYD80A
Function			Heating only		Heating and cooling	
Dimensions	hxwxd	mm	705x600x695		705x600x695	
Leaving water temperature range	heating	°C	25~80		25~80	
Material			Precoated sheet metal		Precoated sheet metal	
Colour			Metallic grey		Metallic grey	
Sound pressure level	nominal	dB(A)	40 ¹ / 43 ²	42 ¹ / 43 ²	40 ¹ / 43 ²	42 ¹ / 43 ²
Weight			92		120	
Refrigerant	type		R-134a		R-134a	
	charge	kg	2	2	2	2
Power supply			1~/ 50Hz /220-240V		1~/ 50Hz /220-240V	

1 Sound levels are mesured at:EW 55°C; LW 65°C

2 Sound levels are mesured at:EW 70°C; LW 80°C

Indoor unit

				EKHBRD011ACV1	EKHBRD014ACV1	EKHBRD016ACV1	EKHBRD011ACY1	EKHBRD014ACY1	EKHBRD016ACY1	
Casing	colour			Metallic grey						
	material			Precoated sheet metal						
Dimensions	unit	height/width/depth		mm	705/600/695					
Weight	unit				144.25			147.25		
Operation range	heating	ambient	min.~max.	°C	-20~-20					
		water side	min.~max.	°C	25~80					
	domestic hot water	ambient	min.~max.	°CDB	-20~35					
		water side	min.~max.	°C	25~80					
Refrigerant	type			R-134a						
	charge			kg	3.2					
Sound pressure level	nom.			dB(A)	43 ¹ 46 ²	45 ¹ 46 ²	46 ¹ 46 ²	43 ¹ 46 ²	45 ¹ 46 ²	46 ¹ 46 ²
	night quiet mode	level 1		dB(A)	40 ¹	43 ¹	45 ¹	40 ¹	43 ¹	45 ¹
Power supply	name			V1			Y1			
	phase			1~			3~			
	frequency			Hz	50					
	voltage			V	220-240			380-415		
Current	recommended fuses			A	25			16		

(1) EW 55°C; LW 65°C; Dt 10°C; ambient conditions: 7°CDB/6°CWB | (2) EW 70°C; LW 80°C; Dt 10°C; ambient conditions: 7°CDB/6°CWB | (3) EW 30



Outdoor unit



			EMRQ8AY1	EMRQ10AY1	EMRQ12AY1	EMRQ14AY1	EMRQ16AY1
Nominal capacity	heating	kW	22.4	28	33.6	39.2	44.8
	cooling	kW	20	25	30	35	40
Capacity range		HP	8	10	12	14	16
Dimensions	HxWxD	mm	1680x1300x765				
Weight		kg	331			339	
Sound power level	heating	dB(A)	78		80	83	84
Sound pressure level	heating	°C	58		60	62	63
Operation range	heating	°C	-20°C~20*				
	domestic water	°C	-20°C~35*				
Refrigerant	type	kg	R-410A				
Power supply			3~/50Hz/380-415V				
Piping connections	liquid	mm	9.52		12.7		
	suction	mm	19.1	22.2	28.6		
	high&low pressure gas		15.9	19.1		22.2	
	max total length		m	300			
	level diffrence OU-IU		m	40			
Recommended fuses		A	20	25		40	

Heating conditions: Ta = 7°CDB / 6°CWB, 100% connection ratio

Cooling conditions: Ta = 35°CDB, 100% connection ratio

* Capacity not guaranteed between -20°C and -15°C



Hot water tank

			EKHTS200AC	EKHTS260AC
Water volume	I		200	260
Max. water temperature	°C		75°C	
Dimensions	HxWxD	mm	1,335x600x695	1,610x600x695
Dimensions - integrated on indoor unit	HxWxD	mm	2,010x600x695	2,285x600x695
Material outside casing			Galvanised metal	
Colour			Metallic grey	
Empty weight	kg		70	78



Heat pump convector

				FWXV15A	FWXV20A
Capacity	heating	45°C ¹	kW	1.5	2.0
	cooling	7°C ²	kW	1.2	1.7
Dimensions	HxWxD		mm	600x700x210	
Weight			kg	15	
Air flow rate	H/M/L/SL		m3/h	318/228/150/126	474/354/240/198
Sound pressure	M		dB(A)	19	29
Refrigerant				Water	
Power Supply				1~/220-240V/50/60Hz	
Piping connections	liquid (OD)/Drain			12.7 / 20	

¹ Water inlet temperature = 45°C / Water outlet temperature: 40°C
indoor temperature = 20°CDB
Medium fan speed

² Water inlet temperature = 7°C / Water outlet temperature: 12°C
indoor temperature = 27°CDB / 19°CWB
Medium fan speed



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.



The present leaflet is drawn up by way of information only and does not constitute an offer binding upon Daikin Europe N.V. Daikin Europe N.V. has compiled the content of this leaflet to the best of its knowledge. No express or implied warranty is given for the completeness, accuracy, reliability or fitness for particular purpose of its content and the products and services presented therein. Specifications are subject to change without prior notice. Daikin Europe N.V. explicitly rejects any liability for any direct or indirect damage, in the broadest sense, arising from or related to the use and/or interpretation of this leaflet. All content is copyrighted by Daikin Europe N.V.

ECPEN12-727 • 1000 • 10/11 • Copyright Daikin
Printed on non-chlorinated paper. Prepared by La Movida, Belgium
Resp. Ed.: Daikin Europe N.V., Zandvoordestraat 300, B-8400 Oostende

FSC

ECPEN12-727

Daikin products are distributed by: