DAIKIN

VRV IV W+ series

Water-to-air heat pump

using water as a heat source

Scale up your expectations

Why choose Daikin
a Daikin VRV water-to-air heat pump?

Property Developers - Delivering intelligent climates

As Daikin is at the forefront of BREEAM and LEED certification compliance, our VRV systems, which use the latest technological developments to lower costs, enhance functionality and increase efficiency, will **enhance your building's value**. Our modular construction enables rapid refurbishment between tenancies as well as helping achieve the highest rent per square metre.

BREEAM®

A sustainable and highly efficient solution

Our intelligently controlled systems **recover waste heat** generated by air conditioning and refrigeration in one part of the building to produce simultaneous heating in another. This **integrated approach** to climate control and hot water production maximises energy efficiency and dramatically reduces running costs without compromising on comfort. On top of that **geothermal** operation of our water-to-air heat pump reduces even further CO_2 emissions and environmental impact.

Modular approach for greater flexibility

Daikin's energy efficient and sustainable systems also offer unique flexibility in terms of installation. The modular construction and low footprint mean that even complex systems can be installed in restricted spaces, with the heat pump either in a plant room, to **minimise external and internal environment impact.**

Non-disruptive refurbishment

Our VRV systems can be designed, built and commissioned on a floor-by-floor basis. This makes possible the installation of new climate control systems within a **phased or partial refurbishment** programme, or the adaptation of an existing system for individual needs within a **multi-tenanted building.** The Daikin **modular** system enables the easy installation or decommissioning of elements and the re-direction or restriction of air flow to suit reconfigured spaces.

Maximising rental space

A Daikin VRV solution, tailored to your building's requirements will take up nearly **30% less plant space** than a typical chilled water system. The heat pumps are smaller, and also the refrigerant piping is taking up less space, the overall effect is maximised commercially lettable area.

Low operating costs

According to Franklin + Andrews running costs for a VRV heat recovery compare highly favourably with a 2 or 4 pipe fan coil system. Running costs per m^2 for a water-based system can **be 40 to 72% higher** compared to a VRV heat recovery system.

Building Managers - Putting you in control

Efficient building services, combined with intelligent building controls, promise **smart use of energy** that forward-thinking businesses expect and demand.

Precise zone control to suit building occupancy

The VRV's intelligent control system can provide **precise regulation** of temperature and air flow for each room. Zone control delivers lower running costs, because it **activates the system only in spaces that require heating or cooling,** and it can shut down the system entirely where and when no air conditioning is required.

Smart energy management

Smart energy management tools maximise the system's efficiency by reducing its running costs and **preventing energy waste**. Whether for an individual system or for the management of multiple buildings, Daikin has an intelligent control solution for every application.

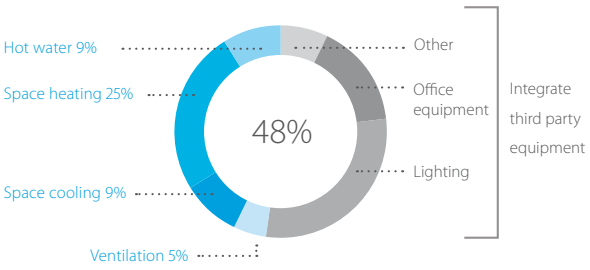
Partial close down in multi-tenant environment

The modular and floor-by-floor approach adopted by Daikin ensures that, in a multi-tenancy environment, a partial close down for maintenance does not close down the entire VRV system. **This avoids the need for expensive backup equipment and protocols.**

Reliability you can depend on

High system reliability and efficiency over the entire lifetime of the system, coupled with low maintenance costs, is the only way of ensuring lower running costs and higher capital returns. This is why Daikin builds in reliability, **after sales service** and efficiency you can depend on.

Average office energy consumption



You can use your VRV solution to **manage up to 50% of an office buildings energy consumption**, giving you huge potential of cost and energy savings by making the right system selection

Consultants - Freedom to design

With Daikin's water-to-air heat pump you have the ultimate system to **fit your design and legislation**. Extremely compact they have the smallest footprint of comparable systems in the market and will fit any type of technical room.

Individually tailored solutions

The Daikin VRV provides great flexibility to help meet current and future client needs and regulations such as EN378. Because the system can be designed and assembled to meet any building's requirements, it offers solutions for a wide range of spaces, from large open lobbies and reception areas, to individual rooms and offices.

The water cooled VRV systems can be connected to **geothermal or hydrothermal sources**, or use solar collectors, and have the option to add water heating and refrigeration into the system.

Our **intelligent control solutions** allow the climate regime to be tailored to meet the requirements of each room, floor or tenant as required, so as to maximise energy efficiency and prevent energy wastage.

Balancing heat loads

Our modular approach also provides great flexibility for balancing heat loads. By using our modelling tools, designers can balance heat loads in different parts of the building, allowing them to choose the right indoor unit style and capacity (over 120 different options) to meet their requirements.

Achieving a balanced mode of heat recovery within a VRV system can also deliver dramatically higher energy efficiencies helping to **maximise BREEAM credits** at the design stage.
This involves designing the system so that it is capable of cooling areas of the building with the highest heat gains and transferring the reclaimed heat to other areas requiring heating or hot water.
The **2-stage heat recovery** (via the refrigerant and water circuit) maximises heat recovery potential.

Differentiating technologies

Variable Refrigerant Temperature

- Variable Refrigerant Temperature allow indivual tailoring to the building need
- Stacked configuration: a 42HP system can be installed in less than 0.5m² of floor space
- Zero heat dissipation obviates the need for ventilation or cooling in the technical room

zero heat dissipation principle ensures a zero heat balance of the unit

Installers - designed with installation in mind

Daikin has designed its VRV system with ease of installation in mind. From lighter units with reduced footprint, over automatic charging and testing to better access to fault codes and components.

We have focussed on **preventing errors** in installation/ commissioning, **preventive maintenance** and **easy service access.**

Reduced installation time by design

Daikin's VRV are designed to be installed fast and accurate. **Settings can be done via PC** and uploaded, error read out is easy from a 7-segment display. Components in this compact unit are still easy to be reached thanks to a **rotating switchbox.** For heat recovery systems our wide range of **extremely compact BS boxes** reduce work as up to 16 units can be connected to one box. Connections and fittings are factory fitted with the option for horizontal or vertical connection **making on-site assembly faster.**

Easier integration of the water side

The VRV uses different output signals via a standard 0-10V allowing **external control and variable water flow** enabling you to control the circulation pump and configure the system to be the most energy efficient as possible.

Preventive maintenance

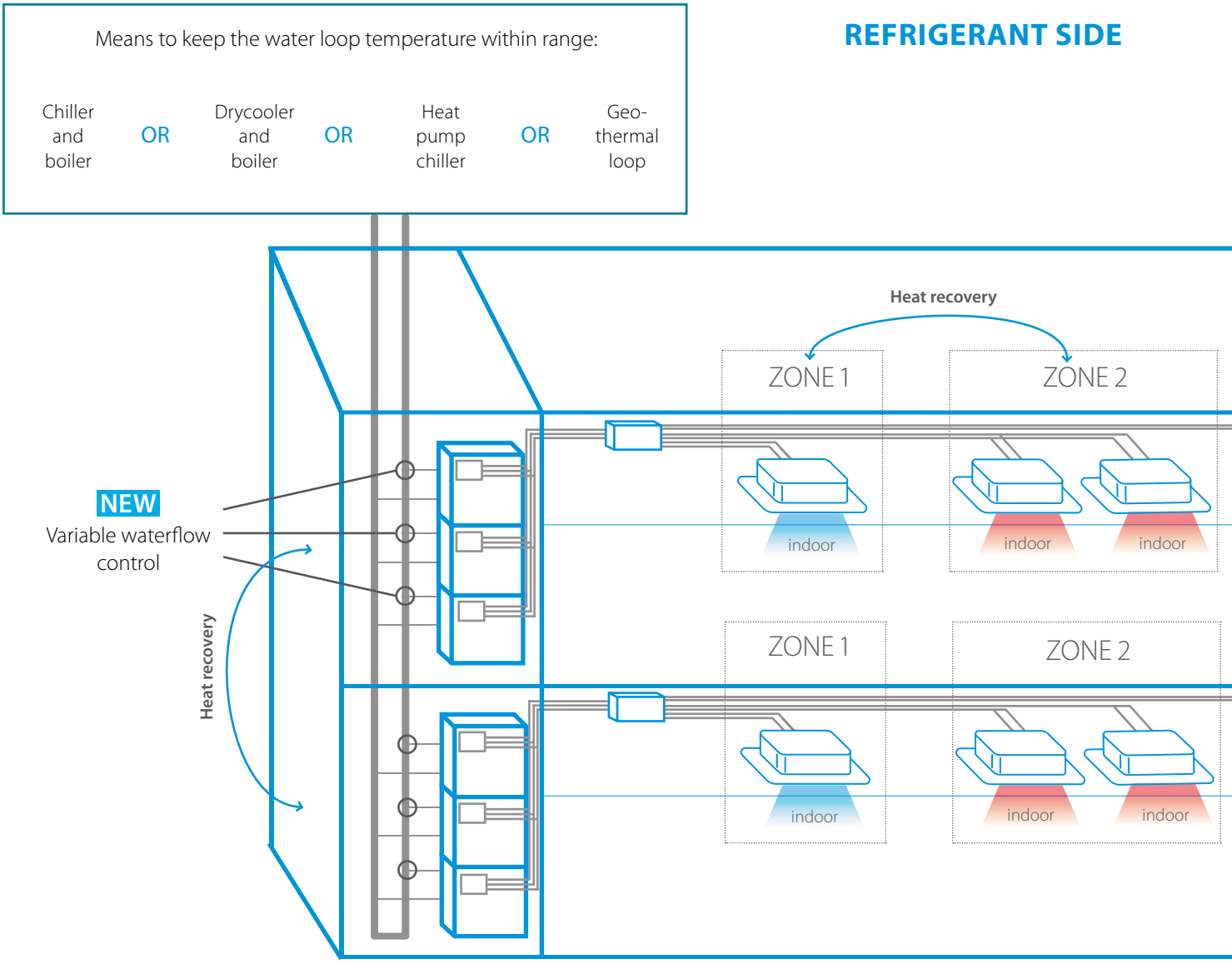
Monitoring the system's performance via our intelligent controllers and i-Net cloud timely informs when maintenance should be done before a shut down occurs, thereby **ensuring that the occupants of the building suffer no decline in environmental comfort**. It also enables the building's owner and manager to schedule longer term maintenance activities and refurbishments to suit demand.

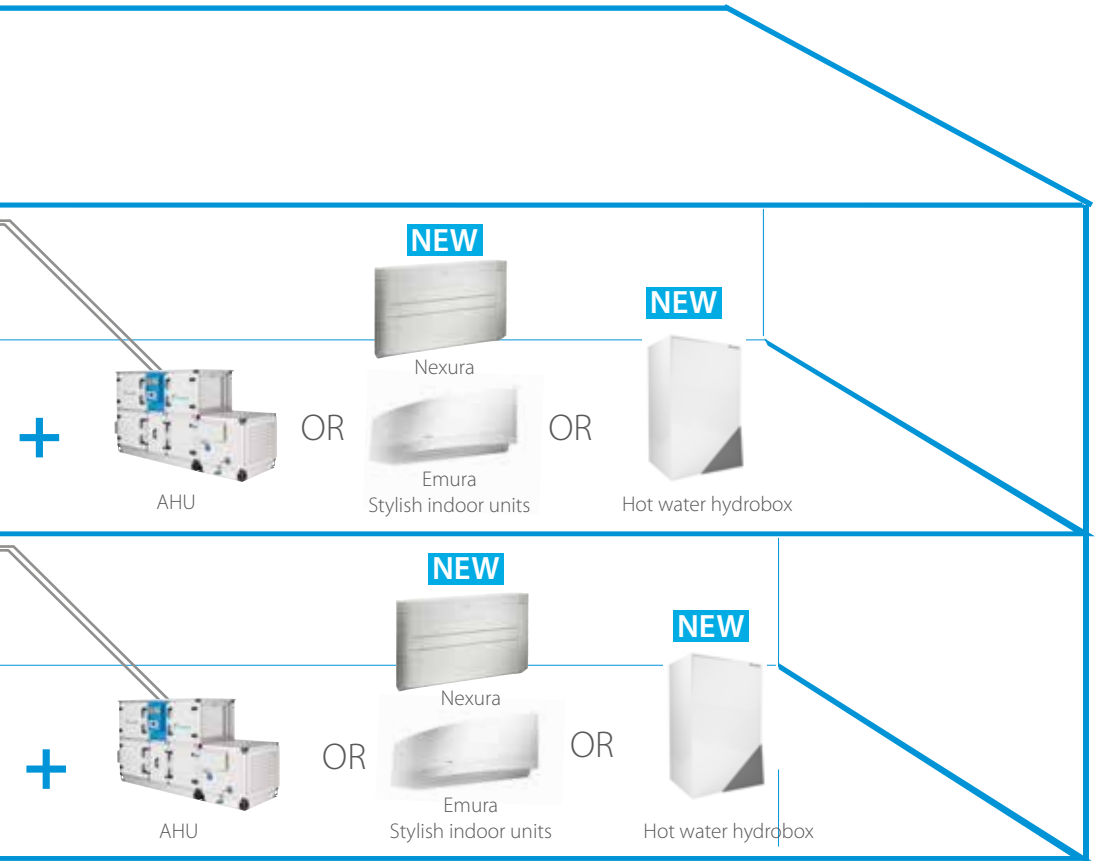
Horizontal piping connection

Vertical piping connection

Rotating switchbox

How does a water-cooled VRV system work?




NEW
NEW
Nexura
+
OR
OR
AHU
Emura
Stylish indoor units
Hot water hydrobox
NEW
NEW
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Emura
Stylish indoor units
Hot water hydrobox

Innovations

for maximum flexibility and ease of installation

Horizontal or vertical piping connection

Highly improved efficiency thanks to enlarged heat exchanger

Easy access to components

Easy front plate removal

step 1

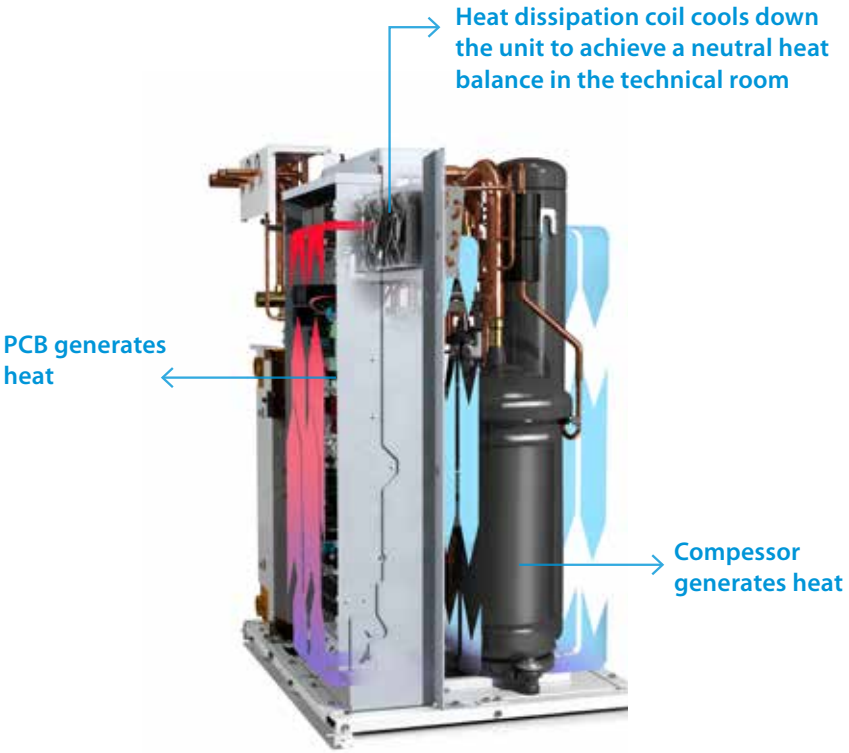
step 2

Rotating switchbox

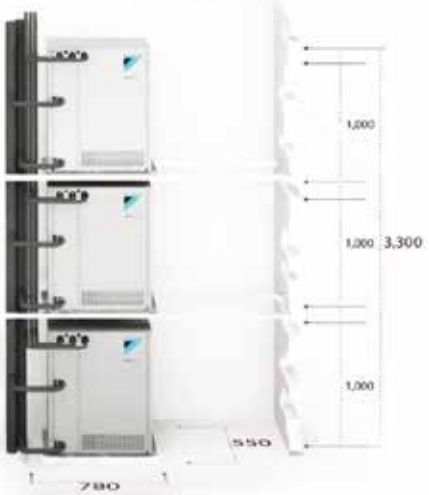
Zero heat dissipation principle

› No need for ventilation or cooling of the technical room

› Enhancing installation flexibility and reliability of parts



Minimal technical room space required.



VRV IV technology

Variable Refrigerant Temperature

› VRV configurator

› 7 segment display

Crystal Tower

BREEAM Design Phase: Excellent rating

A great and well-known example of a Daikin Total Solution leading to high energy-efficient HVAC consumption

› A combination of VRV, Sky Air and Applied systems ensuring all offices and common areas are fully air conditioned.

› Water-cooled VRV as the main contributor to total HVAC energy efficiency due to its two-stage heat recovery system.

› Flexibility: individual thermal control and comfort with VRV on each floor and space.

› Problem-free connection between Daikin units and the LonWorks BMS system ensures the building's total energy consumption is properly monitored and controlled.

Location

48 Lancu de Hunedoara Boulevard
Bucharest Romania

Building details

Built-up area: 24,728 m^2
Total usable area: 20,020 m^2
Floors: 4 basements, 15 floors, technical floor
Building height: 72 m
Office space per level: approx. 1,000 m^2

Daikin systems installed

› 67 x VRV water-cooled units
› 2 x VRV outdoor heat pump units
› 289 VRV indoor units (265 ducts, 24 x cassettes)
› 5 x Sky Air with Roundflow Cassettes
› 4 x air-cooled water chillers
› 11 x DMS504B51 (LonWorks gateway)

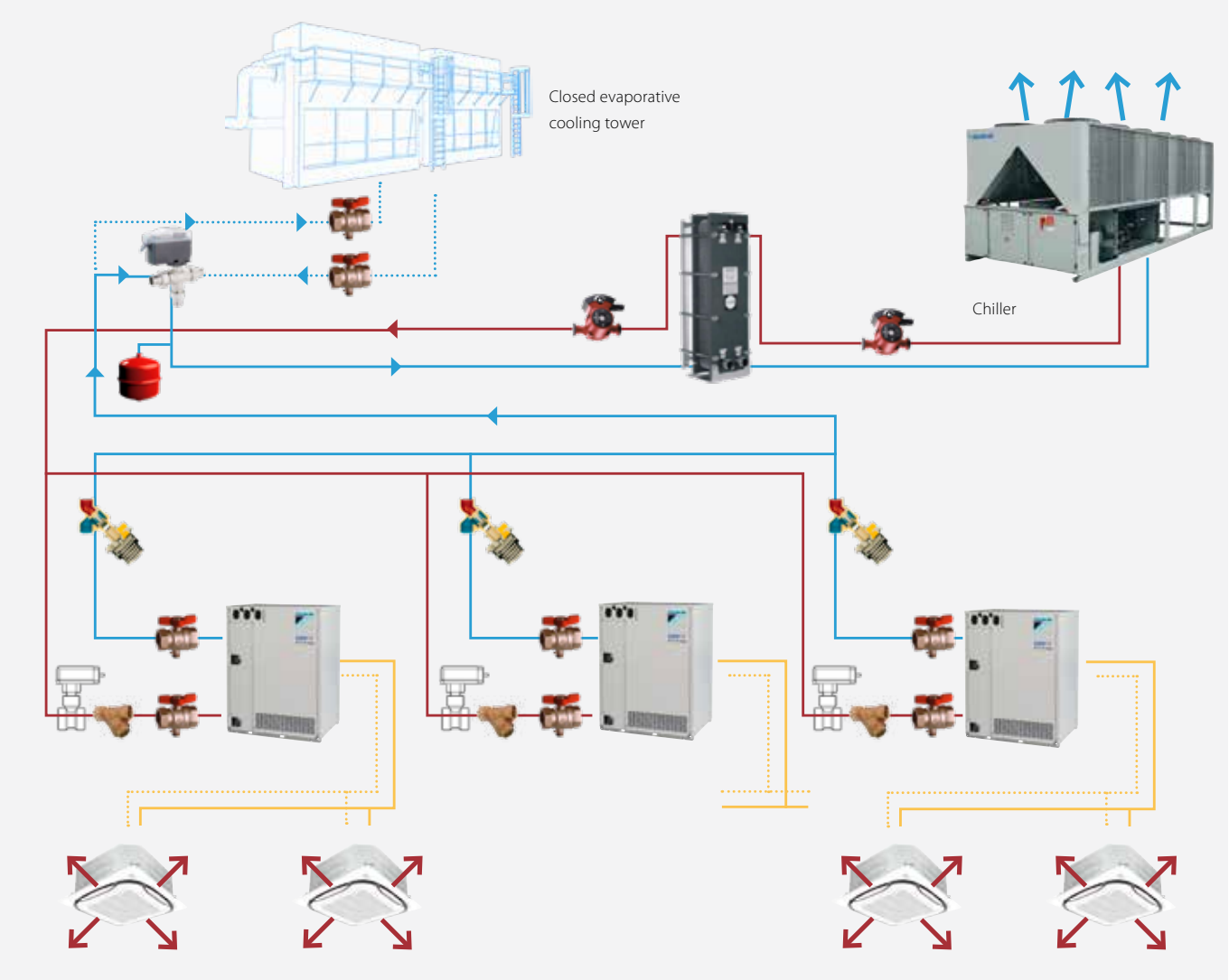
Awards

› Green Building of the Year 2012 (ROGBC)
› Environmental Social & Sustainability award (ESSA)

Application

example

Closed evaporative cooling tower used for cooling, Chiller used for heating



Expansion tank
Circulator Pump
Flow valve or flow control valve
Stop valve
Cooling mode
Heating mode
Refrigerant flow
Strainer
Heat exchanger
Flow switch
Three way valve

Benefits of this setup

- Chiller is only used when cooling tower capacity is not enough and/or when cooling and heating load of VRV is unbalanced → very energy efficient installation
- In case the chiller is operating, a renewable heat source (air) is used, contributing to BREEAM score.
- It is possible to downsize the cooling tower, making the installation more compact

When to use?

- When there is anyway a chiller used for other purposes in the building
- When space for outdoor installation is limited
- Efficiency / green building certification schemes oriented projects

Hotel Van der Valk

Success case study

Hotel Van der Valk chose: Comfort for guests and staff

› Concealed ceiling units create comfort zones within the lobby, meeting the different needs of guests and staff
› Daikin Variable Refrigerant Temperature technology ensures the optimal comfort levels by avoiding cold draughts

Centralised control & management

› Central control of the entire HVAC-R solution
› Easy to set schedules
› Easy integration in front-desk controls with remote access
› BMS functions integrated such as alarm inputs, control of lights, ...

Complete Daikin solution

› Cooling and heating supplied by a combination of VRV air-cooled and water-cooled systems connected to a Geothermal loop for maximum efficiency
› Hot water production via Daikin gas boilers connected to Daikin hot water storage tanks
› Ventilation with Daikin heat recovery air handling units
› Kitchen refrigeration with Daikin ZEAS units

Location

Avenue Mélina Mercouri 7, 7000 Mons
Belgium

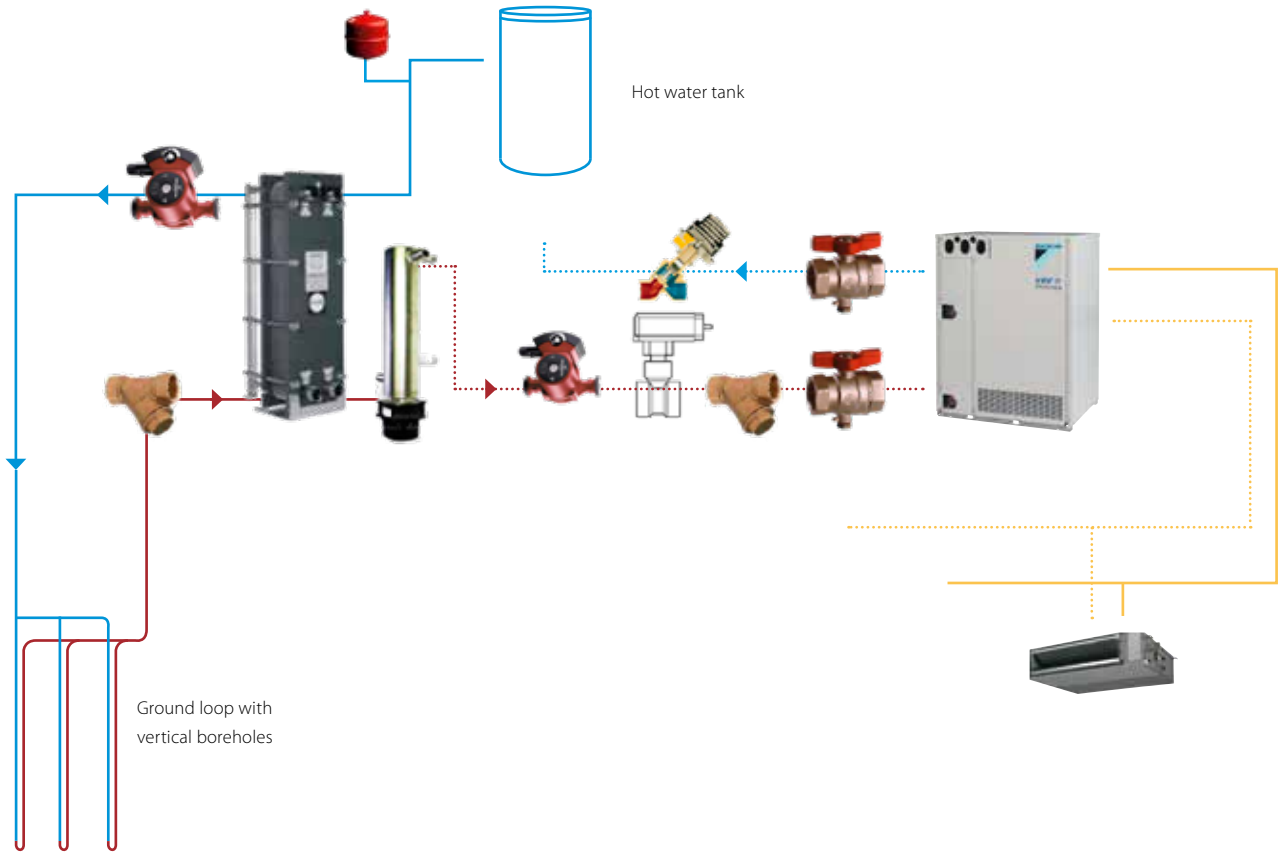
Daikin systems installed

› 11 Water cooled VRV outdoor units
› 10 Air cooled VRV outdoor units (heat recovery and heat pump)
› 1 ZEAS refrigeration outdoor unit
› 177 concealed ceiling indoor units
› 2 Daikin condesing gas boilers connected to Daikin hot water tanks
› 2 Daikin DX air handling units
› 1 intelligent Touch Manager central control with WAGO interface

Application

example

Geothermal operation




Expansion tank


Liquid heater


Strainer


Circulator Pump


Buffer tank


Heat exchanger


Flow valve
or flow control valve


Flow switch


Stop valve


Three way valve

Cooling mode
Heating mode
Refrigerant flow

Benefits of this setup

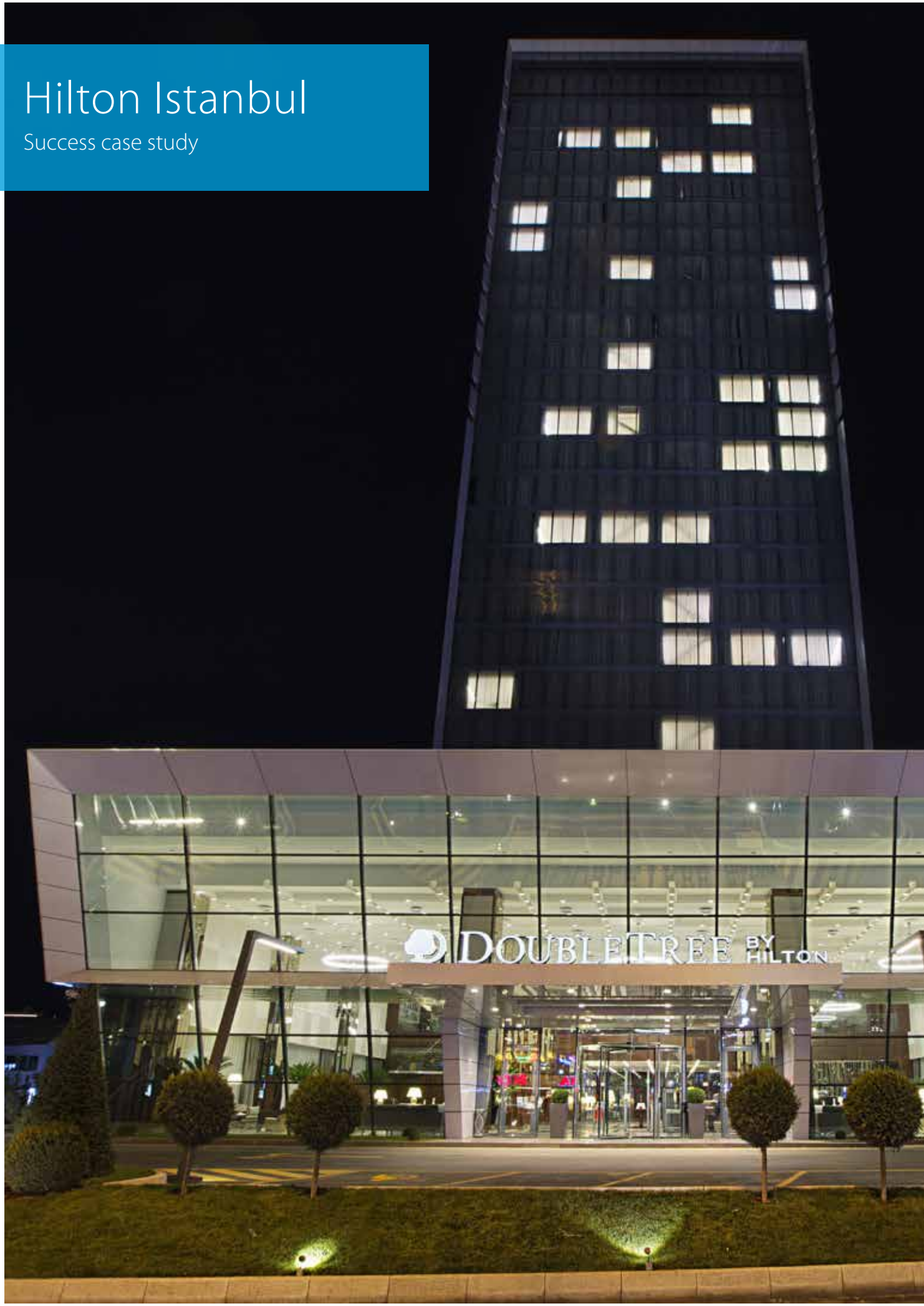
› Very energy efficient
› Ground loop can be in service for a very long time, so future equipment upgrades/replacements are easy
› Vertical boreholes provide more stable water temperature (= Constant high efficiency) and do not occupy a lot of ground space.

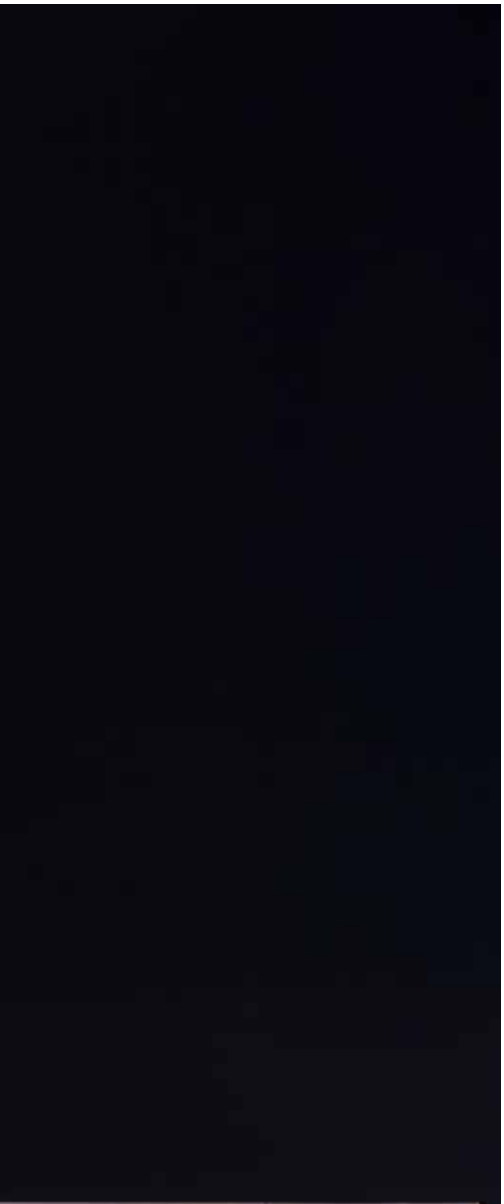
When to use?

› When the soil is suitable for geothermal loops and there is availability of geothermal installation expertise locally
› For the projects with high requirements to energy efficiency, green building certification oriented

Hilton Istanbul

Success case study





Location

Doubletree by Hilton Hotel
Istanbul - Turkey

Daikin systems installed

› Indoor Amount : 420 pcs
FXSQ - FXDQ - FXMQ - FXFQ - FXCQ - FXAQ - FXKQ
› Outdoor Amount : 135 pcs
RWEYQ 8 – 10 – 20 hp
› Heat Reclaim Ventilation : 23 pcs
› Individual Control (BRC1D52): 391 pcs
› Centralized Control (I-Manager): 2 pcs
› AHU DX condensing Unit application : VRW

Efficient use of space

The first steel construction hotel in Turkey, efficiently equipped with Daikin. The construction consists of 2.500 ton of steel. With it's 110 m height, 25 floors and 230 rooms project area is 29.000 m2. The total capacity goes up to 3.500 kW.

The DoubleTree by Hilton hotel in Istanbul chose to install the water cooled VRV units floor by floor, a choice for efficient use of space and efficient climate control.

The technical specifications speak for themselves:
› The VRV outdoor installation area is 50% smaller than the Applied System installation area
› The noise is lowered from 96 dBa to 54 dBa with the VRV outdoor system
› The VRV system power supply capacity is reduced by 30%
› The VRV system has a low start up current
› An energy saving up to 50% and a high COP value
› The VRV system is 40% lighter
› The used boiler capacity has been reduced by 20%

Lower maintenance costs

All the improvements also reduced the service needed to keep the system's performance up to speed. And by not using any water based fan coils there is no corrosion in the floors.

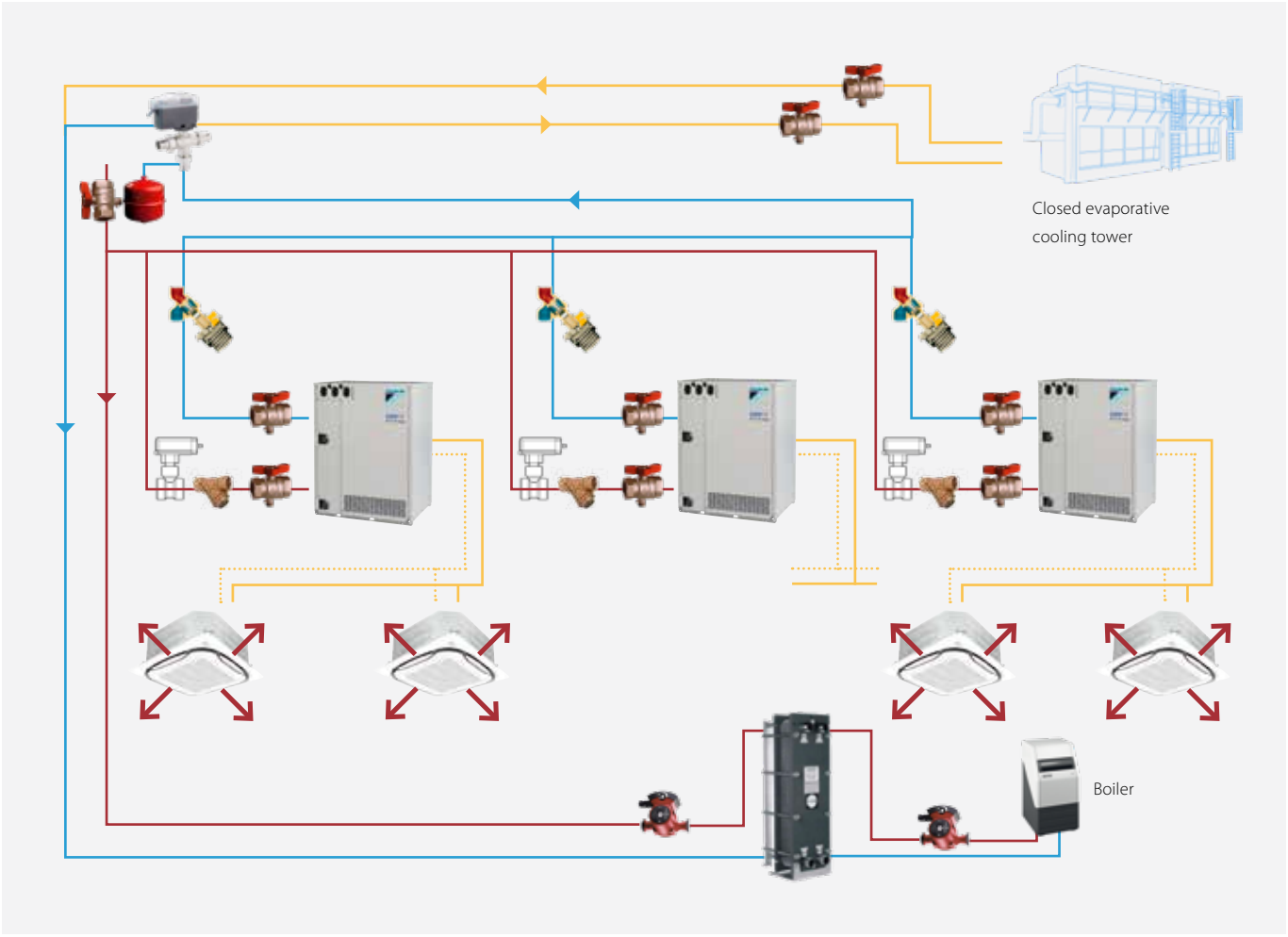
A total solution

Daikin equipped this hotel with a complete solution. The ventilation is a mix of Daikin air handling units and heat reclaim ventilation units. The full solution is monitored and controlled centrally via the intelligent Touch Manager.

Application

example

Dry cooler used for cooling, boiler used for heating



Expansion tank

Strainer

Circulator Pump

Heat exchanger

Flow valve
or flow control valve

Flow switch

Stop valve

Three way valve

Cooling mode
Heating mode
Refrigerant flow

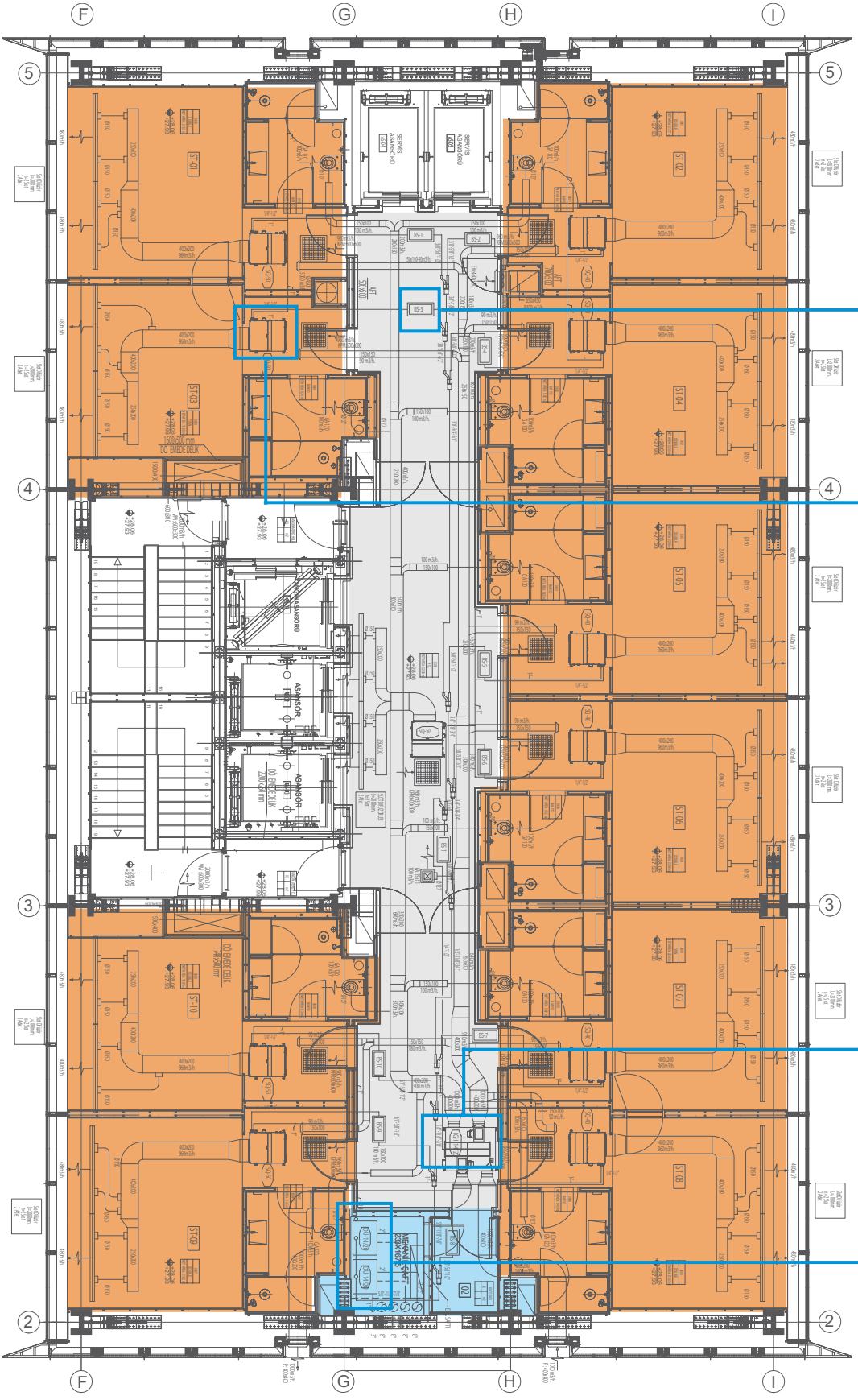
Benefits of this setup

› Simple, cost efficient. Good option to use VRV technology in high-rise building
› Does not make any special demand to the building/ project/installation location
› Provides high efficiency as for hotel application it is usual to have simultaneous cooling and heating load.
› Heat recovery process in the water loop often allows the water temperature to stay within acceptable range even without using drycooler and boiler.

When to use?

› For high-rise buildings or other places where VRV Water Cooled is preferable because of installation conditions

Detailed floor design



BS box installed in hallway, outside guest rooms. One box can address 1 up to 16 rooms

FXSQ
Concealed ceiling unit for guestroom temprature control

HRV
Ventilation located on every floor, close to shaft

RWEYQ
Watercooled VRV on every floor close to shaft. Condensors are silent and compact allowing installation small technical room

Ordina Groningen

Success case study

Location

Ordina Groningen
Groningen - Netherlands

Daikin systems installed

› Indoor units: 130 FXSQ concealed ceiling
› VRV outdoor units: 15 RWEYQ10 units
› Control systems: Intelligent Manager central control

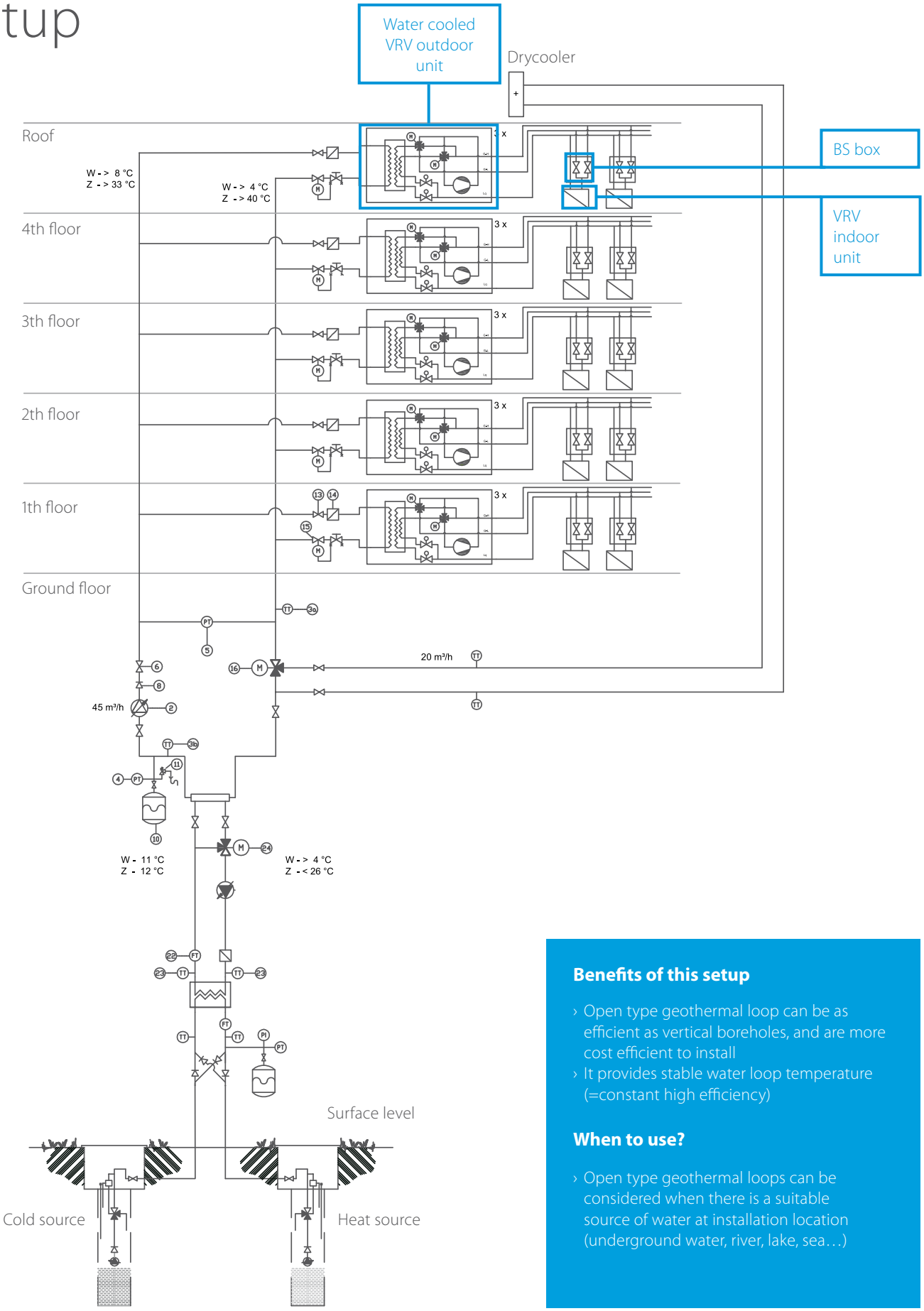
Faster project completion turned a chiller solution into a Water cooled VRV solution

This building was originally designed with chiller and boiler system. Daikin Water cooled VRVIII heat pump connected to an open source is installed for refurbishment. Air handling unit is used for ventilation. Installation of water cooled VRV units are realised faster than planning. Each room is controlled by Intelligent Manager system.

laten herschrijven door copywriter

Application

setup



Benefits of this setup

- Open type geothermal loop can be as efficient as vertical boreholes, and are more cost efficient to install
- It provides stable water loop temperature (=constant high efficiency)

When to use?

- Open type geothermal loops can be considered when there is a suitable source of water at installation location (underground water, river, lake, sea…)

Products overview VRV

Water-to-air

	Model		Product name	4	5	6	8	10	12	13	14	16	18	20	22	24	26	28	30
Water cooled	Water cooled VRV IV	NEW Ideal for high rise buildings, using water as heat source › Reduced CO2 emissions thanks to the use of geothermal energy as a renewable energy source › No need for an external heating or cooling source when used in geothermal mode › Compact & lightweight design can be stacked for maximum space saving › Incorporates VRV IV standards & technologies such as Variable Refrigerant temperature › Variable Water Flow control option increases flexibility and control › Mixed connection of HT hydroboxes and VRV indoor units › Either connect VRV of stylish indoor units (Daikin Emura, Nexura › 2 analogue input signals allowing external control	RWEYQ-T9* VRV IV W-series				●	●	●		●			○	○	○	○	○	○	○	○

Air-to-air

	Model		Product name	4	5	6	8	10	12	13	14	16	18	20	22	24	26	28	30
Air cooled - heat recovery	VRV IV heat recovery	Best efficiency & comfort solution › Fully integrated solution with heat recovery for maximum efficiency › Covers all thermal needs of a building via a single point of contact: accurate temperature control, ventilation, hot water, air handling units and Biddle air curtains › "Free" heating and hot water through heat recovery › The perfect personal comfort for guests/tenants via simultaneous cooling and heating › Incorporates VRV IV standards & technologies such as Variable Refrigerant temperature and continuous heating › Allows technical cooling › Widest range of BS boxes on the market	REYQ-T VRV IV				●	●	●		●	●	●	●						
							○	○		○		○	○	○	○	○	○	○	○
Air cooled - heat pump	VRV IV heat pump with continuous heating	Daikin's optimum solution with top comfort › Continuous heating during defrost › Covers all thermal needs of a building via a single point of contact: accurate temperature control, ventilation, hot water, air handling units and Biddle air curtains › Connectable to stylish indoor units (Daikin Emura, Nexura) › Incorporates VRV IV standards & technologies such as Variable Refrigerant temperature and continuous heating	RYYQ-T(8) VRV IV				●	●	●		●	●	●	●						
							○	○		○		○	○	○	○	○	○	○	○
	VRV IV heat pump without continuous heating	Daikin's solution for comfort & low energy consumption › Covers all thermal needs of a building via a single point of contact: accurate temperature control, ventilation, hot water, air handling units and Biddle air curtains › Connectable to stylish indoor units (Daikin Emura, Nexura) › Incorporates VRV IV standards & technologies such as Variable Refrigerant temperature	RXYQ-T(9) VRV IV				●	●	●		●	●	●	●						
							○	○		○		○	○	○	○	○	○	○	○
	VRVIV-S series Compact	The most compact VRV › Compact and lightweight single fan design saves space and is easy to install › Covers all thermal needs of a building via a single point of contact: accurate temperature control, ventilation, air handling units and Biddle air curtains › Either connect VRV of stylish indoor units (Daikin Emura, Nexura) › Incorporates VRV IV standards & technologies such as Variable Refrigerant temperature	RXYSCQ-TV1 VRV IV S-series Compact	●	●																
	VRVIV-S series	UNIQUE Space saving solution without compromising on efficiency › Space saving trunk design for flexible installation › Covers all thermal needs of a building via a single point of contact: accurate temperature control, ventilation, air handling units and Biddle air curtains › Either connect VRV of stylish indoor units (Daikin Emura, Nexura) › Incorporates VRV IV standards & technologies such as Variable Refrigerant temperature	RXYSQT8V/T8Y/TY1 VRV IV S-series	●	●	●															
				●	●	●	●	●	●										
	VRV IVheat pump for indoor installation	The invisible VRV › Unique VRV heat pump for indoor installation › Total flexibility for any shop location and building type as the outdoor unit is invisible and split up in 2 parts › Incorporates VRV IV standards & technologies such as Variable Refrigerant temperature › Covers all thermal needs of a building via a single point of contact: accurate temperature control, ventilation and Biddle air curtains	SB.RKXYQ-T(8) VRV IV i-series		○		○													
Replacement	heat recovery	Quick & quality replacement for R-22 and R-407C systems › Cost-effective and fast replacement through re-use of exisiting piping › Drastically improve your comfort, efficiency and reliability › No interuption of daily business while replacing your system › Replace Daikin and other manufacturers systems safely	RQCEQ-P3* VRVIII-Q					○		○		○	○	○	○	○	○	○	○
	heat pump	Quick & quality replacement for R-22 and R-407C systems › Cost-effective and fast replacement through re-use of exisiting piping › Drastically improve your comfort, efficiency and reliability › No interuption of daily business while replacing your system › Replace Daikin and other manufacturers systems safely › Incorporates VRV IV standards & technologies such as Variable Refrigerant temperature	RXYQQ-T* VRV IV Q-series		●		●	●	●		●	●	●	●						
												○	○	○	○	○	○	○	○

▪ Single unit
▪ Multi combination

Ranges marked with '*' are not Eurovent certified. Multi combinations are not in scope of the Eurovent certification programme

Capacity (HP)												Description / Combination	**VRV** indoor units	Residential indoor units	**LT Hydrobox** HXY-A	**HT Hydrobox** HXHD-A	HRV units VAM-, VKM-	**AHU connection** EKEXV- + EKEQMCBA	**AHU connection** EKEXV- + EKEQFCBA	**Air curtains** CYV-DK-	Remarks
32	34	36	38	40	42	44	46	48	50	52	54										
												VRV IV-W Water-cooled VRV RWEYQ-T9	○	○	○	○	○	○	○	○	› Standard total system connection ratio limit: 50 ~ 130%
												with VRV indoor units	✓			✓	✓	✓	✓	✓	
												with residential indoor units	✓	✓			✓				› Only single-module systems › Max. 32 indoor units, even on 16HP and larger systems › Connection ratio: 80 ~ 130%
●	●	●	●	●	●							with LT hydrobox	✓		✓		✓				
												with HT hydrobox	✓			✓	✓				
												AHU connection	✓				✓	✓			› Total system connection ratio with AHU + VRV indoor is 50 ~ 110% › Total system connection ratio with AHU only is 90 ~ 110%
												VRV IV Heat Recovery REYQ-T	○	×	○	○	○	○	×	○	› Standard total system connection ratio limit: 50 ~ 130%
												with only VRV indoor units	✓								
												with LT/HT Hydroboxes	✓		✓	✓	✓				› Max 32 indoor units, even on 16HP and larger systems › Total system connection ratio up to 200% possible
												HRV units VAM-, VKM-	✓		✓	✓	✓	✓		✓	
●	●	●	●	●	●	●	●	●	●	●	●	AHU connection EKEXV + EKEQMCBA	✓				✓	✓		✓	› Dedicated systems (with only ventilation units) not allowed – a mix with standard VRV indoor units is allways neccessary
												Biddle air curtain CYV-DK-	✓				✓	✓		✓	
												VRV IV Heat Pump RYYQ-T(8) / RXYQ-T(9)	○	○	○	×	○	○	○	○	› Standard total system connection ratio limit: 50 ~ 130%
												with only VRV indoor units	✓								› 200% total system connection ratio possible under special circumstances
●	●	●	●	●	●	●	●	●	●	●	●	with residential indoor units	✓	✓			✓				› Only single-module systems (RYYQ 8~20 T / RXYQ 8~20 T) › Max 32 indoor units, even on 16HP, 18HP and 20HP systems
												with LT Hydroboxes	✓		✓		✓				› Max 32 indoor units, even on 16HP and larger systems › Contact Daikin in case of multi-module systems (>20HP)
												HRV units VAM-, VKM-	✓	✓	✓		✓	✓		✓	
												AHU connection EKEXV + EKEQMCBA	✓				✓	✓		✓	
●	●	●	●	●	●	●	●	●	●	●	●	AHU connection EKEXV + EKEQFCBA							✓		
												Biddle air curtain CYV-DK-	✓				✓	✓		✓	
												VRV IV-S RXYSQ-/RXYSCQ-	○	○	×	×	○	○	×	○	› Standard total system connection ratio limit: 50 ~ 130%
												with VRV indoor units only	✓				✓	✓		✓	
												with residential indoor units only		✓							› With residential indoor: connection ratio limit: 80 ~ 130%
												VRV IV i series SB.RKXYQ-T(8)	✓	×	×	×	✓	✓	×	✓	› Standard total system connection ratio limit: 50 ~ 130%
												VRV III-Q Replacement H/R RQCEQ-P3	✓	×	×	×	✓	×	×	×	› Standard total system connection ratio limit: 50 ~ 130%
●	●	●	●	●	●							**VRV IV-Q Replacement H/P** RXYQQ-T	✓	×	×	×	✓	✓	×	✓	› Standard total system connection ratio limit: 50 ~ 130%

○ ... connection of indoor unit possible, but not neccessarily simultaneously with other allowed indoor units
✓ ... connection of indoor unit possible even simultaneously with other checked units in the same row
× ... connection of indoor not possible on this outdoor unit system

Products overview VRV

Capacity class (kW)

Type	Model		Product name		15	20	25	32	40	50	63	71	80	100	125	140	200	250
Ceiling mounted cassette	UNIQUE Round flow cassette	360° air discharge for optimum efficiency and comfort › Auto cleaning function ensures high efficiency › Intelligent sensors save energy and maximize comfort › Flexibility to suit every room layout › Lowest installation height in the market!	FXFQ-A			●	●	●	●	●	●		●	●	●			
	UNIQUE Fully flat cassette	Unique design that integrates fully flat into the ceiling › Perfect integration in standard architectural ceiling tiles › Blend of iconic design and engineering excellence › Intelligent sensors save energy and maximize comfort › Small capacity unit developed for small or well-insulated rooms › Flexibility to suit every room layout	FXZQ-A		●	●	●	●	●	●								
	2-way blow ceiling mounted cassette	Thin, lightweight design installs easily in narrow ceiling spaces › Depth of all units is 620mm, ideal for narrow ceiling spaces › Flexibility to suit every room layout › Reduced energy consumption thanks to DC fan motor › The flaps close entirely when the unit is not operating › Optimum comfort with automatic air flow adjustment to the required load	FXCQ-A			●	●	●	●	●	●		●		●			
	Ceiling mounted corner cassette	1-way blow unit for corner installation › Compact dimensions enable installation in narrow ceiling voids › Flexible installation thanks to different air discharge options	FXKQ-MA				●	●	●		●							
Concealed ceiling	Small concealed ceiling unit	Designed for hotel rooms › Compact dimensions enable installation in narrow ceiling voids › Discretely concealed in the ceiling: only the grilles are visible › Flexible installation as the air suction direction can be altered from rear to bottom suction	FXDQ-M9			●	●											
	Slim concealed ceiling unit	Slim design for flexible installation › Compact dimensions enable installation in narrow ceiling voids › Medium external static pressure up to 44Pa › Only grilles are visible › Small capacity unit developted for small of well-insulated rooms › Reduced energy consumption thanks to DC fan motor	FXDQ-A3		●	●	●	●	●	●	●		NEW Auto cleaning filter option				NEW Multi zoning option	
	Concealed ceiling unit with medium ESP	Slimmest yet most powerfull medium static pressure unit on the market! › Slimmest unit in class, only 245mm › Low operating sound level › Medium external static pressure up to 150Pa facilitates using flexible ducts of varying lengths › Automatic air flow adjustment function measures the air volume and static pressure and adjusts it towards the nominal air flow, guaranteeing comfort	FXSQ-A		●	●	●	●	●	●	●		●	●	●	●	NEW Multi zoning option	
	Concealed ceiling unit with high ESP	ESP up to 200, ideal for large sized spaces › Optimum comfort guaranteed no matter the length of ductwork or type of grilles, thanks to automatic air flow adjustment › Reduced energy consumption thanks to DC fan motor › Flexible installation as the air suction direction can be altered from rear to bottom suction	FXMQ-P7							●	●		●	●	●			
	Concealed ceiling unit with high ESP	ESP up to 270, ideal for extra large sized spaces › Only grilles are visible › Large capacity unit: up to 31.5 kW heating capacity	FXMQ-MB														●	●
NEW Wall mounted	Wall mounted unit	For rooms with no false ceilings nor free floor space › Flat, stylish front panel is more easy to clean › Small capacity unit developted for small of well-insulated rooms › Reduced energy consumption thanks to DC fan motor › The air is comfortably spread up- and downwards thanks to 5 different discharge angles	FXAQ-A		●	●	●	●	●	●	●							
Ceiling suspended	Ceiling suspended unit	For wide rooms with no false ceilings nor free floor space › Ideal for comfortable air flow in wide rooms thanks to Coanda effect › Rooms with ceilings up to 3.8m can be heated or cooled very easily! › Can easily be installed in both new and refurbishment projects › Can even be mounted in corners or narrow spaces without any problem › Reduced energy consumption thanks to DC fan motor	FXHQ-A					●			●			●				
	UNIQUE 4-way blow ceiling suspended unit	Unique Daikin unit for high rooms with no false ceilings nor free floor space › Rooms with ceilings up to 3.5m can be heated up or cooled down very easily! › Can easily be installed in both new and refurbishment projects › Flexibility to suit every room layout › Reduced energy consumption thanks to DC fan motor	FXUQ-A									●		●				
Floor standing	Floor standing unit	For perimeter zone air conditioning › Can be installed in front of glass walls or free standing as both the front and the back are finished › Ideal for installation beneath a window › Requires very little installation space › Wall mounted installation facilitates cleaning beneath the unit	FXLQ-P			●	●	●	●	●	●							
	Concealed floor standing unit	Ideal for installation in offices, hotels and residential applications › Discretely concealed in the wall, leaving only the suction and discharge grilles visible › Can even be installed underneath a window › Requires very little installation space as the depth is only 200mm › High ESP allows flexible installation	FXNQ-A			●	●	●	●	●	●							
Cooling capacity (kW)[1]					1.7	2.2	2.8	3.6	4.5	5.6	7.1	8.0	9.0	11.2	14.0	16.0	22.4	28.0
Heating capacity (kW)[2]					1.9	2.5	3.2	4.0	5.0	6.3	8.0	9.0	10.0	12.5	16.0	18.0	25.0	31.5

(1) Nominal cooling capacities are based on: indoor temperature: 27°CDB, 19°CWB, outdoor temperature: 35°CDB, equivalent refrigerant piping: 5m, level difference: 0m

(2) Nominal heating capacities are based on: indoor temperature: 20°CDB, outdoor temperature: 7°CDB, 6°CWB, equivalent refrigerant piping: 5m, level difference: 0m

Stylish indoor units overview

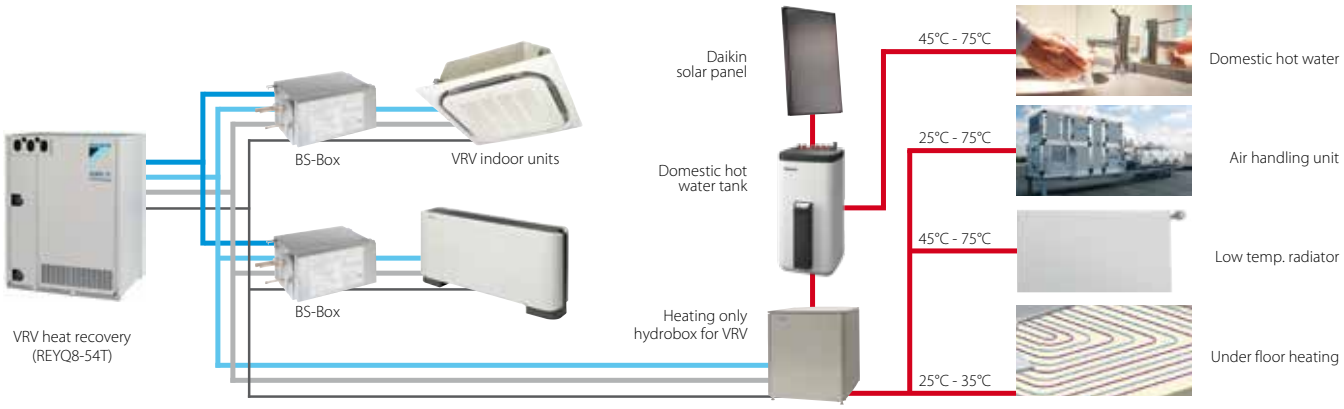
If you want to connect DX cassette, ceiling suspended or concealed ceiling, use VRV models.

Type	Model	Product name	15	20	25	35	42	50	60	71
Wall mounted	Daikin Emura Wall mounted unit reddot award 2014 winner	FTXJ-MW/MS 		●	●	●		●		
Floor standing	Nexura floor standing unit	FVXG-K 			●	●		●		
	Floor standing unit	FVXM-F 			●	●		●		
	Flexi type unit	FLXS-B(9) 			●	●		●	●	

[1] Decoration panel BYCQ140DG or BYCQ140DGF + BRC1E53A/B/C needed, [2] To connect stylish indoor units a BPMKS unit is needed, [3] A mix of RA indoor units and VRV indoor units is not allowed.

Hydrobox overview

for efficient hot water production



Hydrobox range

Capacity class (kW)

Type	Product name		Model	80	125	200	Leaving water temperature range
Low temperature hydrobox	HXY-A8		For high efficiency space heating and cooling › Ideal for hot or cold water in underfloor, air handling units, low temperature radiators … › Hot/cold water from 5° to 45°C › Large operation range (down to -20°C and up to 43°C) › Fully integrated water-side components save time on system design › Space saving contemporary wall hung design	●	●		5 °C - 45 °C
High temperature hydrobox	HXHD-A8		For efficient hot water production and space heating › Ideal for hot water in bathrooms, sinks and for underfloor heating, radiators, air handling units, … › Hot water from 25 to 80°C › "Free" heating and hot water through heat recovery › Uses heat pump technology to produce hot water efficiently, providing up to 17% savings compared to a gas boiler › Possibility to connect thermal solar collectors		●	●	25 °C - 80 °C

Biddle air curtains
overview

‘Open Door’ Trading

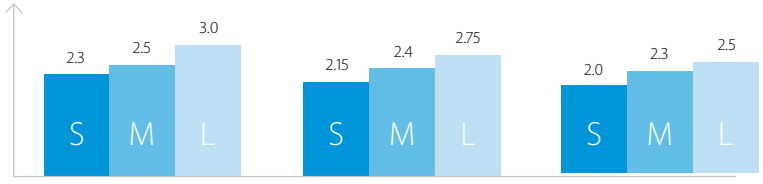
Although the customer friendly aspects of open door trading are widely appreciated by retail and commercial outlet managers, open doors can also give rise to massive losses in conditioned warm or cold air and hence, energy. Biddle air curtains however, not only preserve indoor temperatures and generate significant economies, they also represent an invitation for customers, to enter a pleasant trading and working environment.

High efficiency and low CO_2 emission

An efficient outdoor/indoor climate separation limits heat loss through the door opening and enhances the efficiency of the air conditioning system. Combining Biddle air curtains with Daikin heat pumps can lead to savings up to 72% compared to electric air curtains and a paypack period of less than 1.5 years!

Air curtain size selector

Door height (m)



Favourable
Covered shopping mall or revolving door entrance

Normal
No opposite open doors, little direct wind, building with ground floor only

Unfavourable
Location at a corner or square, multiple floors and/or open stairwell

Portfolio

Type	Product name	
Biddle air curtain free hanging	CYV S/M/L-DK-F	
Biddle air curtain cassette	CYV S/M/L-DK-C	
Biddle air curtain recessed	CYV S/M/L-DK-R	

- A payback time of less than 1.5 years compared to electrical air curtains
- Easy and quick installation
- Maximum energy efficiency thanks to rectifier technology
- 85% air separation efficiency
- Cassette model (C): mounted into a false ceiling enhancing aesthetics
- Free-hanging model (F): easy wall mounted installation
- Recessed model (R) : neatly concealed in the ceiling

Ventilation unit overview

from small heat recovery ventilation to large-scale air handling units for the provision of fresh air ventilation to homes, or commercial outlets such as offices, hotels, stores and others.

Ventilation solutions

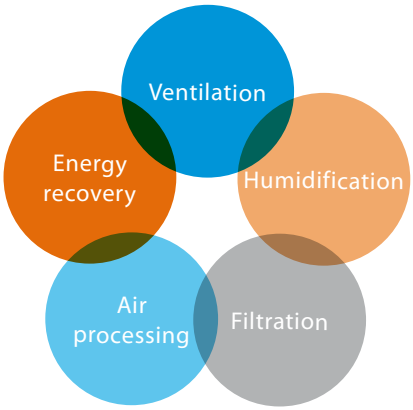
Daikin offers state-of-the-art ventilation solutions that can easily be integrated into any project.
› Unique portfolio within DX manufacturers
› High-quality solutions complying with the highest Daikin quality standards
› Seamless integration of all products to provide the best indoor climate
› All Daikin products connected to a single control total control of the HVAC system.

Heat Reclaim Ventilation - Ventilation with heat recovery as standard

Proper ventilation is a key component of climate control in buildings, offices and shops and part of the EU requirements. Our heat recovery units can **recover both sensible and latent heat** thus substantially **reducing the air conditioning load of up to 40%.** The range starts from as low as 150 m³/h to 2500 m³/h (VAM) and go up to 25000 m³/h (Modular AHU).

Ventilation with DX connection - Control over fresh air temperature

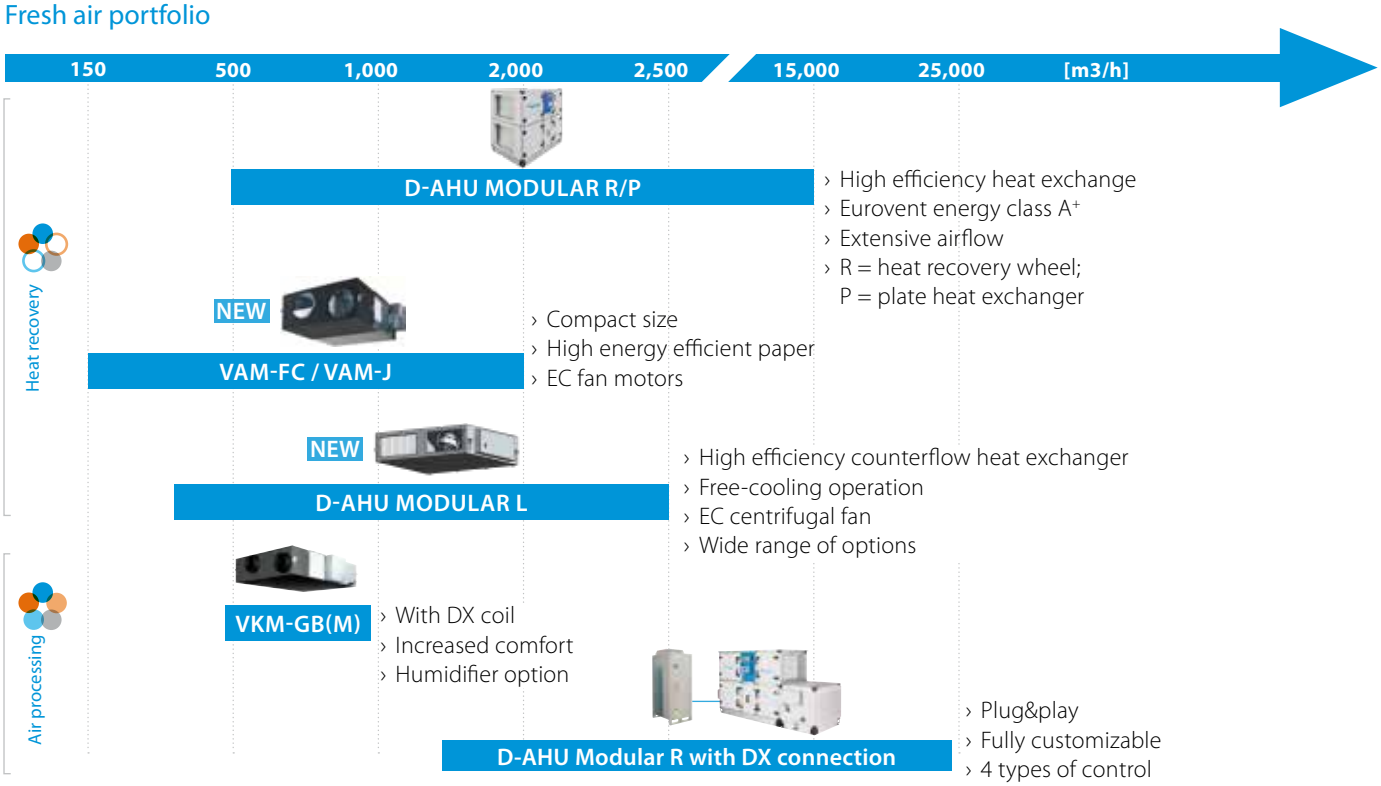
Daikin offers a range of R-410A inverter condensing units to be used in combination with Daikin AHUs for ultimate control over the fresh air. There are 4 control possibilities when **combining AHU and Daikin outdoor units** hence offering all the required flexibility for any installation. Indoor units can be combined to the same outdoor unit to reduce the installation costs. For **false-ceiling installations** where space is a constraint, the VKM can fit perfectly to deliver fresh air at a comfortable temperature and it has an optional humidification element.



Five components of indoor air quality

› **Ventilation:** ensures the provision of fresh air
› **Energy recovery:** recovers heat and moisture from the outgoing air to maximise comfort and efficiency
› **Air processing:** heats or cools incoming fresh air maximising comfort and minimising the load on the air conditioning installation
› **Humidification:** optimises the balance between indoor and outdoor humidity
› **Filtration:** removes dust, pollution and odours from the air

Fresh air portfolio



New pre-sized fresh air solution

Easy selection

› 16 pre-selected combinations – to cover all fresh air needs in Europe
› The right outdoor unit and the necessary connection kits to the coil of the AHU are factory mounted and configured.
› Total solution – Daikin provides the complete solution

Fast quotation

› Select as any other unit in Xpress selection software and show the solution in the report

Download Xpress now with the new pre-sized combination from my.daikin.eu

Easy ordering

› AHU and outdoor unit are automatically selected in VRV xpress

Easy installation

› Same pipe diameter from AHU to outdoor unit
› Direct integration in iTM

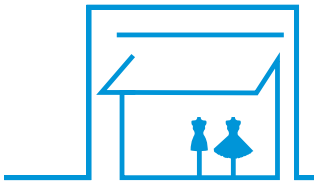
More details in the dedicated brochure

Control systems overview

Daikin offers various control solution adapted to the requirements of even the most demanding commercial application.

› Basic control solutions for those customers with few requirements and limited budget
› Integrating control solutions for those customers that would like to integrate Daikin units into their existing BMS system
› Advanced control solutions for those customers that expect Daikin to deliver a mini BMS solution, including advance energy management

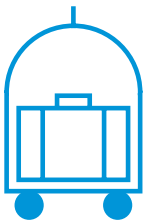
Shop



	Unit control		Integrating control			Advanced control	
							
	BRC1H519W/S/K	RTD-20	RTD-Net	KLIC-DI	EKMBDXA	DCC601A51	DCM601A51
	1 remote controller for 1 indoor unit (group)	1 gateway for 1 indoor unit (group)	1 gateway for 1 indoor unit (group)	1 gateway for 1 indoor unit	1 gateway for max. 64 indoor unit(s) (groups) & 10 outdoors	1 unit for 32 indoor unit(s)	1 iTM for 64 indoor unit(s) (groups) (1)
Automatic control of A/C	●	●	●	●	●	●	●
Limit control possibilities for shop staff	●	●	●	●	●	●	●
Create zones within the shop		●				●	●
Interlock with eg. Alarm, PIR sensor		●				●	●
Integrate Daikin units into existing BMS via Modbus			●		●		
Integrate Daikin units into existing BMS via KNX				●			
Integrate Daikin units into existing BMS via HTTP							●
Monitor energy consumption	● (4)					● (2)	●
Advanced energy management						● (2)	●
Allows free cooling						●	●
Integrate Daikin products cross pillars into Daikin BMS							●
Integrate third party products into Daikin BMS						●	●
Online control						● (2)	●
Manage multiple sites						● (2)	● (3)

(1) 7 iTM plus adapters (DCM601A52) can be added to have 512 indoor groups and 80 outdoor (systems) (2) Via Daikin cloud service (3) Through own IT set-up (not Daikin cloud server) (4) Not available on all indoors

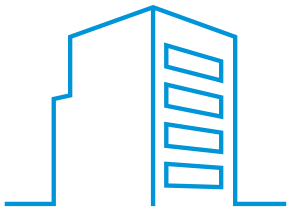
Hotel



	Unit control	Integrating control		Advanced control
				
	BRC1H519W/S/K	RTD-HO	KLIC-DI	DCM601A51
	1 remote controller for 1 indoor unit (group)	1 gateway for 1 indoor unit (group)	1 gateway for 1 indoor unit	1 iTM for 64 indoor unit(s) (groups) (1)
Hotel guest can control & monitor basic functionalities from his room	●	●	● (3)	●
Limit control possibilities for hotel guests	●	●	●	●
Interlock with window contact	● (2)	●		●
Interlock with key-card	● (2)	●		●
Integrate Daikin units into existing BMS via Modbus		●		
Integrate Daikin units into existing BMS via KNX			●	
Integrate Daikin units into existing BMS via HTTP				●
Monitor energy consumption				●
Advanced energy management				●
Integrate Daikin products cross pillars into Daikin BMS				●
Integrate third party products into Daikin BMS				●
Online control				●

(1) : 7 iTM plus adapters (DCM601A52) can be added to have 512 indoor groups and 80 outdoor (systems) (2) Via BRP7A51 adapter (3) requires KNX compatible controller

Office



	Unit control	Integrating control			Advanced control	
						
	BRC1E53A/B/C	EKMBDXA	DMS504B51	DMS502A51 / DAM412B51	DCC601A51	DCM601A51
	1 remote controller for 1 indoor unit (group)	1 gateway for max. 64 indoor unit(s) (groups) & 10 outdoors	1 gateway for 64 indoor unit(s) (groups)	1 gateway for 128 indoor unit(s) (groups), 20 out-doors (2)	1 unit for 32 indoor unit(s) (groups)	1 iTM for 64 indoor unit(s) (groups) (1)
Automatic control of A/C	●	●	●	●	●	●
Centralised control for management		●	●	●	●	●
Local control for office workers	●	●	●	●	●	●
Limit control possibilities for office workers	●				●	●
Integrate Daikin units into existing BMS via Modbus		●				
Integrate Daikin units into existing BMS via HTTP					●	●
Integrate Daikin units into existing BMS via LonTalk			●			
Integrate Daikin units into existing BMS via BACnet				●		
Energy consumption read out	●					
Monitor energy consumption					● (4)	●
Advanced energy management					● (4)	●
Integrate Daikin cross pillar products into Daikin BMS						●
Integrate third party products into Daikin BMS					●	●
Online control					● (4)	●
Manage multiple sites					● (4)	● (5)

(1) 7 iTM plus adapters (DCM601A52) can be added to have 512 indoor groups and 80 outdoor (systems) (2) extension needed to go to 256 indoor unit(s) (groups), 40 outdoors (3) ON/OFF only
(4) Via Daikin cloud service (5) Through own IT set-up (not Daikin cloud sever)

Infrastructure cooling

	Unit	Integrating		Advanced
				
	BRC1H519W/S/K	RTD-10	DTA113B51	DCM601A51
	1 remote controller for 1 indoor unit (group) (2)	1 gateway for 1 indoor unit (group) Up to 8 gateways can be linked together	1 adapter for op to 4 units	1 iTM for 64 indoor unit(s) (groups) (1)
Automatic control of A/C	●	●	●	●
Back-up operation	●	●	●	●
Duty rotation	●	●	●	●
Limit control possibilities in the technical cooling room	●	●		●
If room temperature above max., then show alarm & start standby unit.		●		●
If an error occurs, an alarm will be shown.	●	●		●
If an error occurs, activate an alarm output	Via KRP2/4A option (3)	●		Via WAGO I/O

(1) : 7 iTM plus adapters (DCM601A52) can be added to have 512 indoor groups and 80 outdoor (systems) (2) Infrastructure cooling functions only compatible with indoor units connected to Seasonal Smart outdoor units. (3) See option list of indoor unit

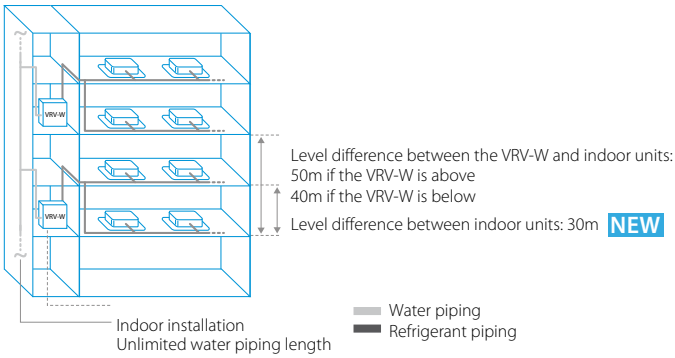
Specifications

RWEYQ-T9

VRV IV water cooled+series

Ideal for high rise buildings, using water as heat source

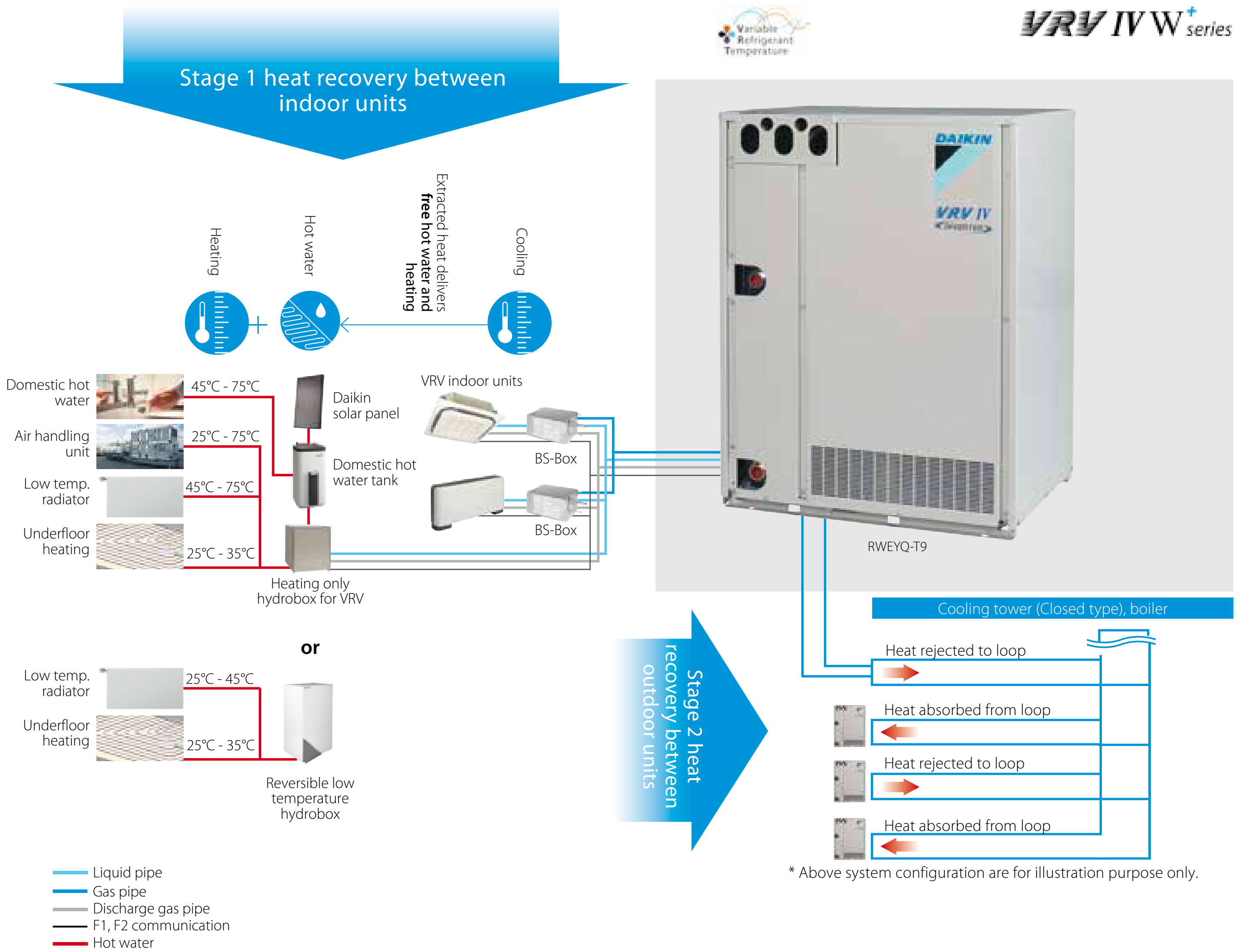
› Environmental conscious solution: reduced CO2 emmisions thanks to the use of geothermal energy as a renewable energy source and typical lower refrigerant levels making it ideal to comply with EN378
› Covers all thermal needs of a building via a single point of contact: accurate temperature control, ventilation, air handling units, Biddle air curtains and hot water
NEW › Unique zero heat dissipation principle obviates the need for ventilation or cooling in the technical room, maximising installation flexiblity
NEW › Wide range of indoor units: combine VRV with stylish indoor units such as Daikin Emura, Nexura ...
› Incorporates VRV IV standards & technologies: Variable Refrigerant Temperature, VRV configurator, 7-segment display and full inverter compressors
› Customize your VRV for best seasonal efficiency & comfort with the weather dependant Variable Refrigerant Temperature function. Increased seasonal efficiency and no more cold draft by supply of high outblow temperatures
NEW › Developed for easy installation and servicing: choice between top or front connection for refrigerant piping and rotating switch box for easy access to serviceable parts
NEW › Compact & lightweight design can be stacked for maximum space saving: 42HP can be installed in less than 0,5m^2 floorspace
› 2-stage heat recovery: first stage between indoor units, second stage between outdoor units thanks to the storage of energy in the water circuit
› Unified model for heat pump and heat recovery version and geothermal and standard operation
› Variable Water Flow control option increases flexibility and control
NEW › 2 analogue input signals allowing external control of ON-OFF, operation mode, error signal, …
› Contains all standard VRV features



NEW Extended piping length between indoor and outdoor units up to 165m (actual)

Outdoor unit					RWEYQ	8T9	10T9	12T9	14T9
Capacity range					HP	8	10	12	14
Cooling capacity	Nom.	30°C inlet water temperature	Nom. Waterflow		kW	22.4	28.0	33.5	40.0
Heating capacity	Nom.	20°C inlet water temperature	Nom. Waterflow		kW	25.0	31.5	37.5	45.0
Power input - 50Hz	Cooling	30°C inlet water temperature	Nom. Waterflow		kW	3.5	4.9	6.0	7.9
	Heating	20°C inlet water temperature	Nom. Waterflow		kW	3.9	4.9	6.2	8.4
EER at nom. capacity	30°C inlet water temperature		Nom. Waterflow		kW/kW	6.40	5.75	5.55	5.04
COP at nom. capacity	20°C inlet water temperature		Nom. Waterflow		kW/kW	6.50	6.40	6.10	5.37
Maximum number of connectable indoor units						64(1)			
Indoor index connection	Min.					100	125	150	175
	Nom.					200	250	300	350
	Max.					300	375	450	525
Dimensions	Unit	HeightxWidthxDepth			mm	980x767x560			
Weight	Unit				kg	185			
Sound power level	Cooling	Nom.			dBA	65	71	72	74
Sound pressure level	Cooling	Nom.			dBA	48	50	56	58
Operation range	Inlet water temperature	Cooling	Min.~Max.		°CDB	10~45			
		Heating	Min.~Max.		°CWB	10~45			
	Temperature around casing		Max.		°CDB	40			
	Humidity around casing		Cooling~Heating		%	80~80			
Refrigerant	Type/GWP					R-410A/2,087.5			
	Charge				kg/TCO2Eq	7.90/16.5		9.60/20.0	
Piping connections	Liquid	OD			mm	9,52		12,7	
	Gas	OD			mm	19.1 (2)	22.2 (2)	28.6 (2)	
	HP/LP gas	OD			mm	15.90 (3) / 19.10 (4)	19.10 (3) / 22.20 (4)	19.10 (3) / 28.60 (4)	22.20 (4) / 28.60 (3)
	Drain	Size				14mm OD/ 10mm ID			
	Water	Inlet/Outlet				ISO 228-G1 1/4 B/ISO 228-G1 1/4 B			
	Total piping length		System	Actual	m	300			
Power supply	Phase/Frequency/Voltage				Hz/V	3N~/50/380-415			
Current - 50Hz	Maximum fuse amps (MFA)				A	25			

(1) Actual number of connectable indoor units depends on the indoor unit type (VRV indoor, Hydrobox, RA indoor, etc.) and the connection ratio restriction for the system (50% <= CR <= 130%)
(2) In case of heat pump system gas pipe is not used. (3) In case of heat recovery system. (4) In case of heat pump system



* Above system configuration are for illustration purpose only.

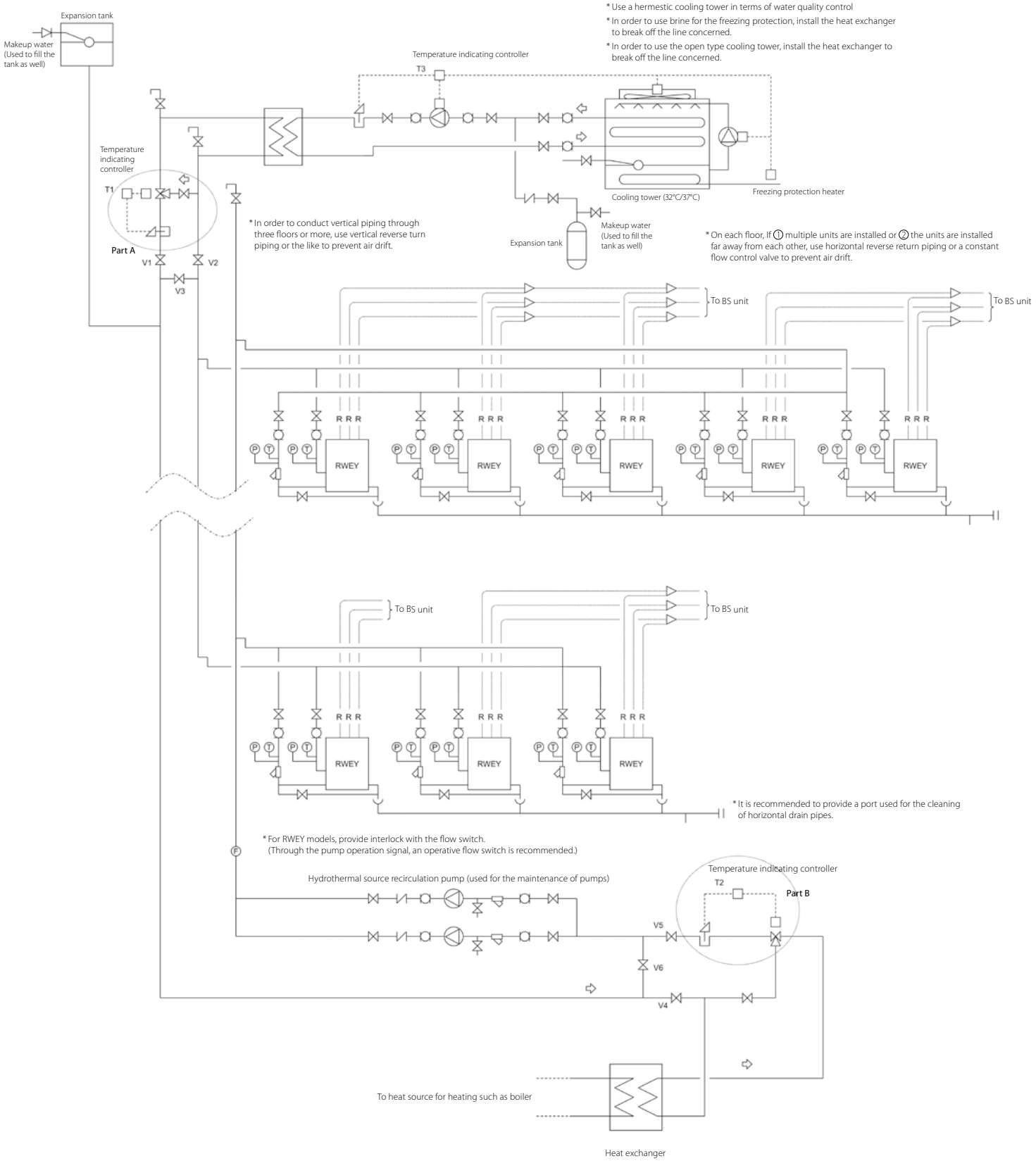
			RWEYQ	16T9	18T9	20T9	22T9	24T9	26T9	28T9
System	Outdoor unit module 1			RWEYQ8T9	RWEYQ8T9	RWEYQ8T9	RWEYQ10T9	RWEYQ12T9	RWEYQ12T9	RWEYQ14T9
	Outdoor unit module 2			RWEYQ8T9	RWEYQ10T9	RWEYQ12T9	RWEYQ12T9	RWEYQ12T9	RWEYQ14T9	RWEYQ14T9
Capacity range			HP	16	18	20	22	24	26	28
Cooling capacity	Nom.	30°C inlet water temperature Nom. Waterflow	kW	44.8	50.4	56.0	61.5	67.0	73.5	80.0
Heating capacity	Nom.	20°C inlet water temperature Nom. Waterflow	kW	50.0	56.5	63.0	69.0	75.0	82.5	90.0
Power input - 50Hz	Cooling	30°C inlet water temperature Nom. Waterflow	kW	7.0	8.4	9.7	10.9	12.1	13.8	15.9
	Heating	20°C inlet water temperature Nom. Waterflow	kW	7.7	8.8	9.8	11.1	12.3	14.4	16.8
EER at nom. capacity	30°C inlet water temperature	Nom. Waterflow	kW/kW	6.40	6.02	5.75	5.65	5.56	5.33	5.04
COP at nom. capacity	20°C inlet water temperature	Nom. Waterflow	kW/kW	6.50	6.44	6.40	6.23	6.10	5.74	5.37
Maximum number of connectable indoor units				64 (1)						
Indoor index connection	Min.			200	205	225	245	265	285	305
	Nom.			400	410	450	490	530	570	610
	Max.			600	615	675	735	795	855	915
Piping connections	Liquid	OD	mm	12.7	15.9				19.1	
	Gas	OD	mm	28.6 (2)				34.9 (2)		
	HP/LP gas	OD	mm	22.2 (3) / 28.6 (4)		28.6 (3) / 28.6 (4)		28.6 (3) / 34.9 (4)		
	Total piping length	System Actual	m	300						
Power supply	Phase/Frequency/Voltage		Hz/V	3N~/50/380-415						
Current - 50Hz	Maximum fuse amps (MFA)		A	25	50					

			RWEYQ	30T9	32T9	34T9	36T9	38T9	40T9	42T9
System	Outdoor unit module 1			RWEYQ8T9	RWEYQ8T9	RWEYQ8T9	RWEYQ12T9	RWEYQ12T9	RWEYQ12T9	RWEYQ14T9
	Outdoor unit module 2			RWEYQ10T9	RWEYQ12T9	RWEYQ12T9	RWEYQ12T9	RWEYQ12T9	RWEYQ14T9	RWEYQ14T9
	Outdoor unit module 3			RWEYQ12T9	RWEYQ12T9	RWEYQ14T9	RWEYQ12T9	RWEYQ14T9	RWEYQ14T9	RWEYQ14T9
Capacity range			HP	30	32	34	36	38	40	42
Cooling capacity	Nom.	30°C inlet water temperature Nom. Waterflow	kW	84.0	89.5	95.0	100.5	107.0	113.5	120.0
Heating capacity	Nom.	20°C inlet water temperature Nom. Waterflow	kW	94.5	100.5	106.5	112.5	120.0	127.5	135.0
Power input - 50Hz	Cooling	30°C inlet water temperature Nom. Waterflow	kW	14.6	15.8	16.9	18.1	19.7	21.7	23.8
	Heating	20°C inlet water temperature Nom. Waterflow	kW	14.8	16.0	17.2	18.4	20.4	22.7	25.1
EER at nom. capacity	30°C inlet water temperature	Nom. Waterflow	kW/kW	5.75	5.68	5.61	5.56	5.43	5.23	5.04
COP at nom. capacity	20°C inlet water temperature	Nom. Waterflow	kW/kW	6.40	6.28	6.19	6.10	5.89	5.61	5.37
Maximum number of connectable indoor units				64						
Indoor index connection	Min.			325	345	365	385	405	425	445
	Nom.			650	690	730	770	810	850	890
	Max.			975	1,035	1,095	1,155	1,215	1,275	1,335
Piping connections	Liquid	OD	mm	19.1						
	Gas	OD	mm	34.9 (2)			41.3 (2)			
	HP/LP gas	OD	mm	28.6 (3) / 19.1 (4)				34.9 (3) /19.1 (4)		
	Total piping length	System Actual	m	300						
Power supply	Phase/Frequency/Voltage		Hz/V	3N~/50/380-415						
Current - 50Hz	Maximum fuse amps (MFA)		A	80						

(1) Actual number of connectable indoor units depends on the indoor unit type (VRV indoor, Hydrobox, RA indoor, etc.) and the connection ratio restriction for the system (50% <= CR <= 130%)
(2) In case of heat pump system gas pipe is not used. (3) In case of heat recovery system. (4) In case of heat pump system

Detailed Water cooled
VRV installation examples

Typical Installation in cold district with cooling tower, glycol and intermediary heat exchanger



Note:
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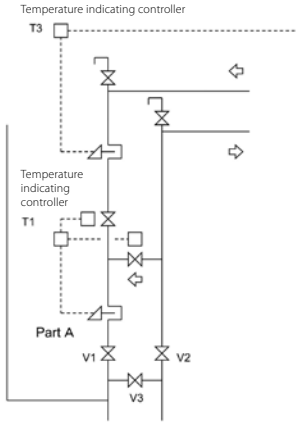
Practically, construction methods may vary with projects. Therefore, consult with the architect office for the design and construction of the system.

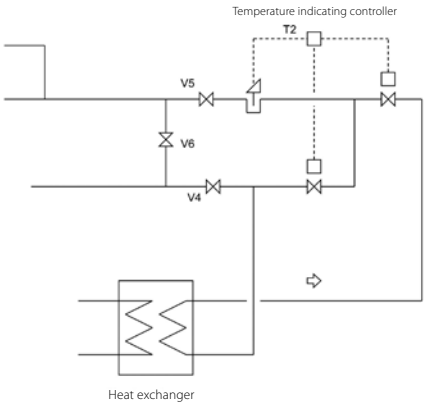
The following section shows precautions for the design of systems, which should be thoroughly observed.

1. Temperature
   The operating range of hydrothermal cooling/heating free VRV (RWEY) is 10°C to 45°C.
   Keep the water temperature in the system within the said range through the ON/OFF operation of 2-way control valve, three-way control valve, cooling tower, or boiler.
2. Water quality
   The hydrothermal cooling/heating free VRV (RWEY) requires quality stability of water to be used.
   Be sure to install the hermestic cooling water or, in order to install the open type cooling water, install the heat exchanger to break off the line concerned.
3. Freezing
   Freezing protection should be provided for the cooling tower water during wintertime.
   Take some sort of measures shown below so that water on the primary and secondary side of the cooling water will not freeze up during wintertime.
   Typical measure: If the water temperature drops,
   Start the pump to recirculate water.
   Provide freezing protection using freezing protection heater.
   Provide water temperature drop protection through the forced startup of the boiler. Drain water from the cooling tower.
   Particularly, if the unit should stop for an extended period of time, it may freeze up. Consequently, attention should be paid for this point.
4. Air drift
   Provide constant amount of feed water through the installation of reverse return piping system and constant flow control valve.

Typical modification to Part A (Three-way valve → Two-way valve)



Typical modification to Part B (Three-way valve → Two-way valve)

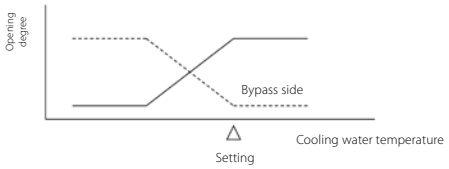


	Pump
	Temperature controller
	Three-way valve (mixed type)
	Y strainer
	Flexible joint
Ⓟ	Pressure gauge
Ⓣ	Thermometer
Ⓕ	Flow switch

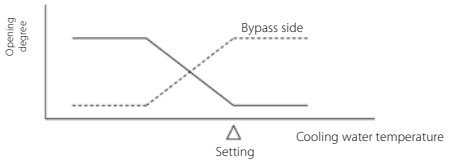
Typical set values (reference values)

Operation mode		Cooling (mainly for cooling)	Heating (mainly for cooling)	In-between seasons (cooling/heating combination)
T1 set value		15°C		25°C
T2 set value			40°C	20°C
T3 set value		33°C, 31°C		33°C, 31°C
Open/Closed of valve Open: ○ Closed: ×	V1	○	×	○
	V2	○	×	○
	V3	×	○	×
	V4	×	○	○
	V5	×	○	○
	V6	○	×	×

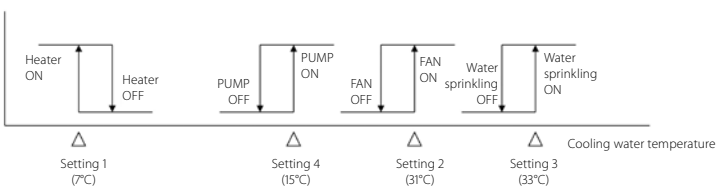
T1 Control



T2 Control

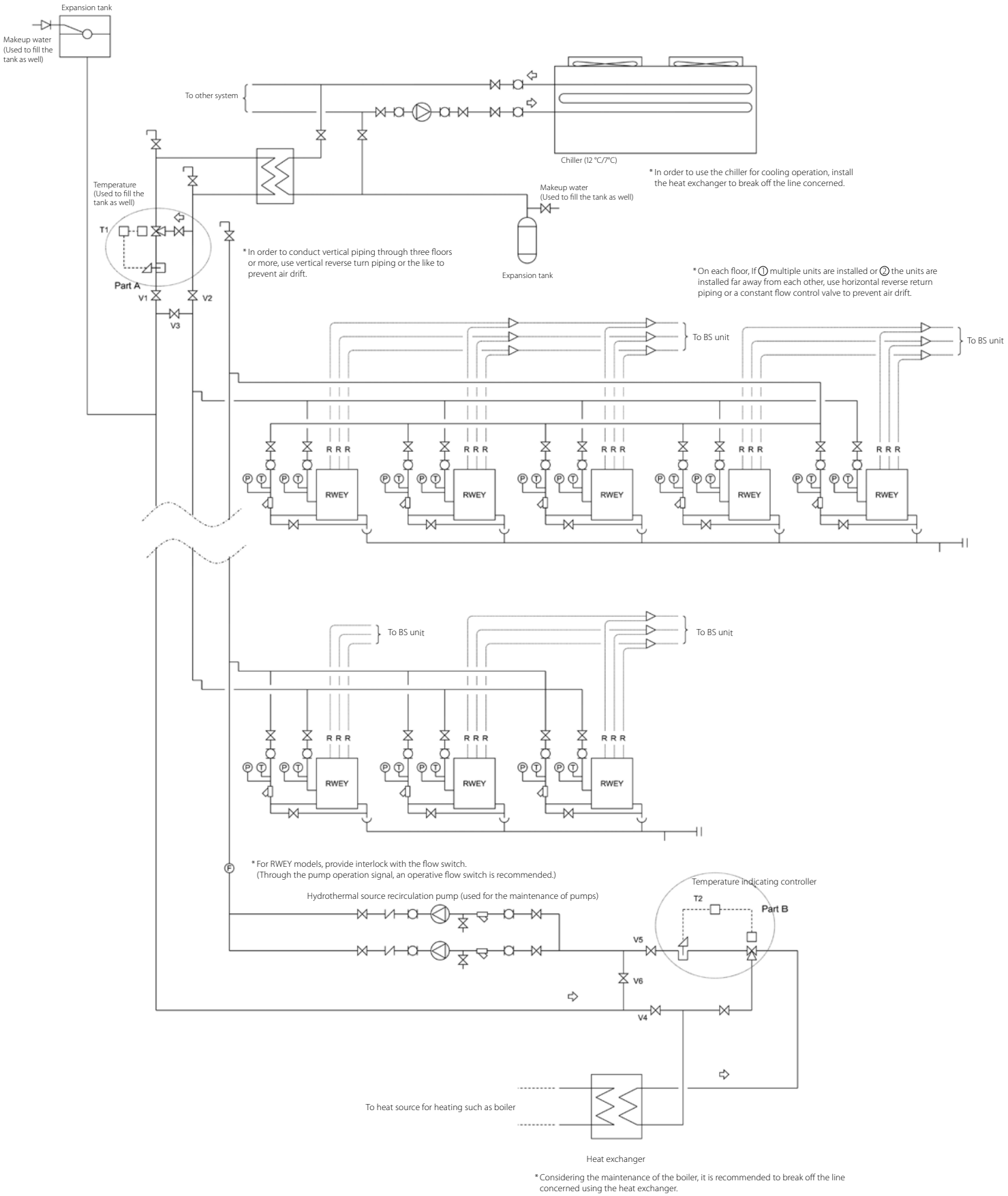


T3 Control



* If freezing is expected to occur, install the freezing protection heater or drain water from the water sprinkling side.
(If water is drained from the water sprinkling side, pay attention so that loads will never be applied to cooling mainly.)

Typical installation with chiller instead of cooling tower



Note:
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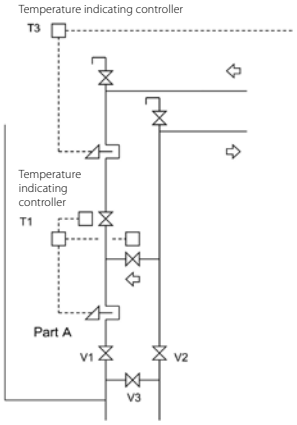
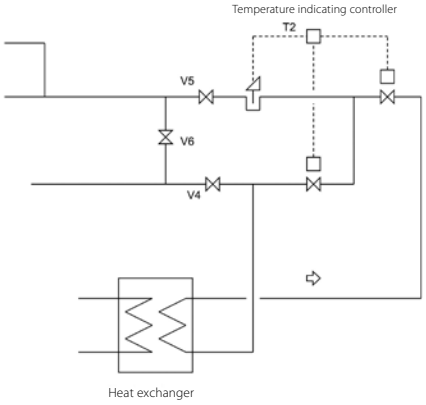
   The operating range of hydrothermal cooling/heating free VRV (RWEY) is 10°C to 45°C.
   Keep the water temperature in the system within the said range through the ON/OFF operation of 2-way control valve, three-way control valve, cooling tower, or boiler.
2. Water quality
   The hydrothermal cooling/heating free VRV (RWEY) requires quality stability of water to be used.
   Be sure to install the hermestic cooling water or, in order to install the open type cooling water, install the heat exchanger to break off the line concerned.
3. Freezing
   Freezing protection should be provided for the cooling tower water during wintertime.
   Take some sort of measures shown below so that water on the primary and secondary side of the cooling water will not freeze up during wintertime.
   Typical measure: If the water temperature drops,
   - Start the pump to recirculate water.
   - Provide freezing protection using freezing protection heater.
   - Provide water temperature drop protection through the forced startup of the boiler. Drain water from the cooling tower.

   Particularly, if the unit should stop for an extended period of time, it may freeze up. Consequently, attention should be paid for this point.
4. Air drift
   Provide constant amount of feed water through the installation of reverse return piping system and constant flow control valve.

Typical modification to Part A (Three-way valve → Two-way valve)



Typical modification to Part B (Three-way valve → Two-way valve)

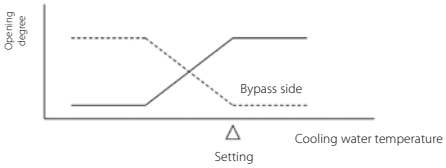


	Pump
	Temperature controller
	Three-way valve (mixed type)
	Y strainer
	Flexible joint
Ⓟ	Pressure gauge
Ⓣ	Thermometer
Ⓕ	Flow switch

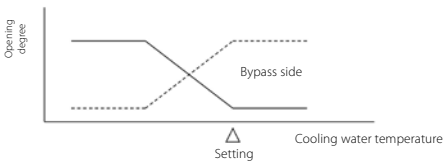
Typical set values (reference values)

Operation mode		Cooling (mainly for cooling)	Heating (mainly for cooling)	In-between seasons (cooling/heating combination)
T1 set value		15°C		25°C
T2 set value			40°C	20°C
T3 set value		33°C, 31°C		33°C, 31°C
Open/Closed of valve Open: ○ Closed: ×	V1	○	×	○
	V2	○	×	○
	V3	×	○	×
	V4	×	○	○
	V5	×	○	○
	V6	○	×	×

T1 Control

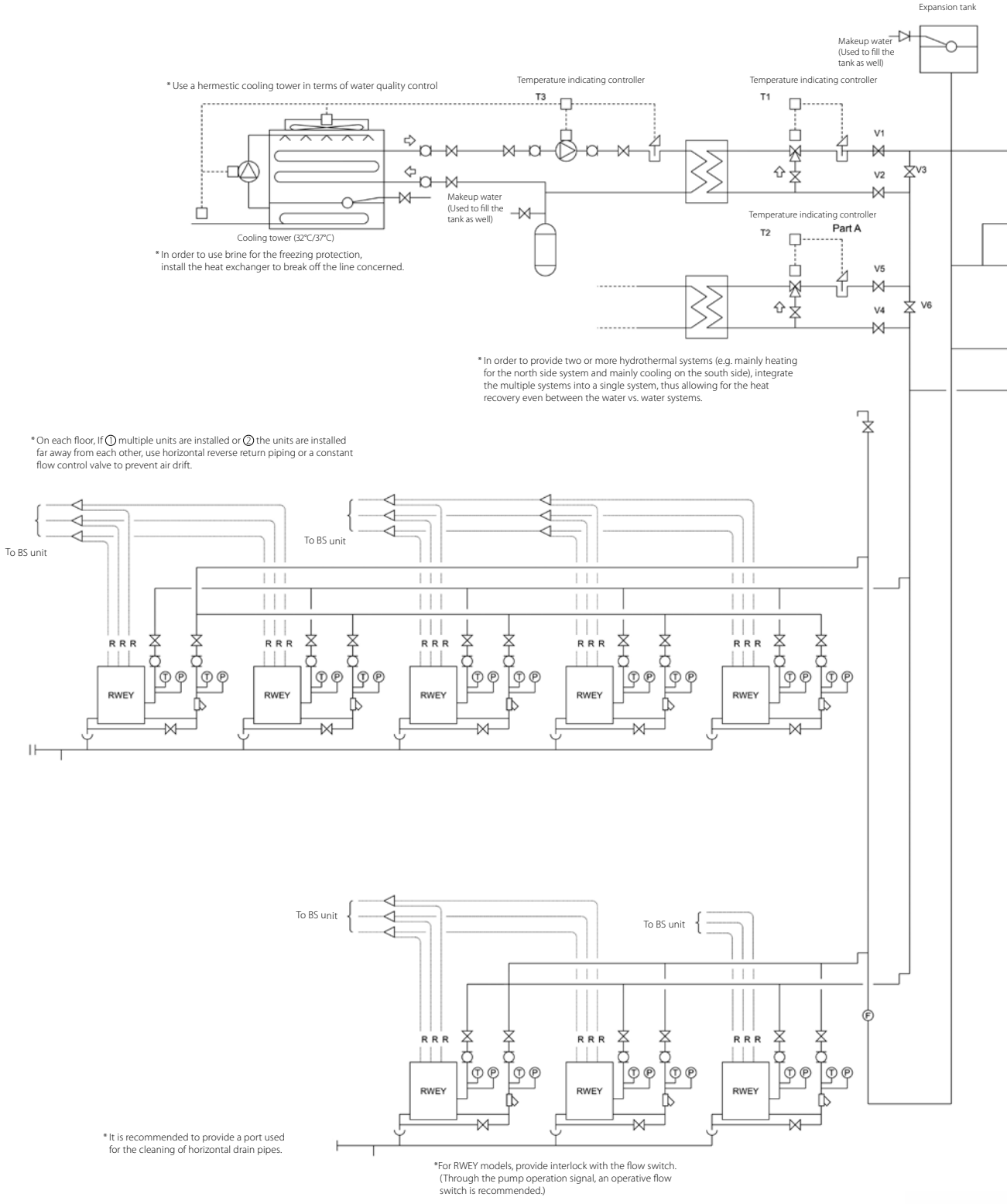


T2 Control



T3 Control

Typical Installation with heat recovery from multiple systems through water circuit



Operation mode		Cooling (mainly for cooling)	Heating (mainly for cooling)	In-between seasons (cooling/heating combination)
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T3 set value		33°C, 31°C		33°C, 31°C
Open/Closed of valve Open: ○ Closed: ×	V1	○	×	○
	V2	○	×	○
	V3	×	○	×
	V4	×	○	○
	V5	×	○	○
	V6	○	×	×

	Pump
	Temperature controller
	Three-way valve (mixed type)
	Y strainer
	Flexible joint
Ⓟ	Pressure gauge
Ⓣ	Thermometer
Ⓕ	Flow switch

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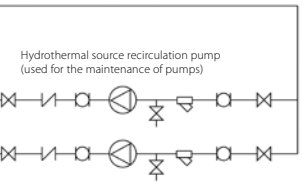

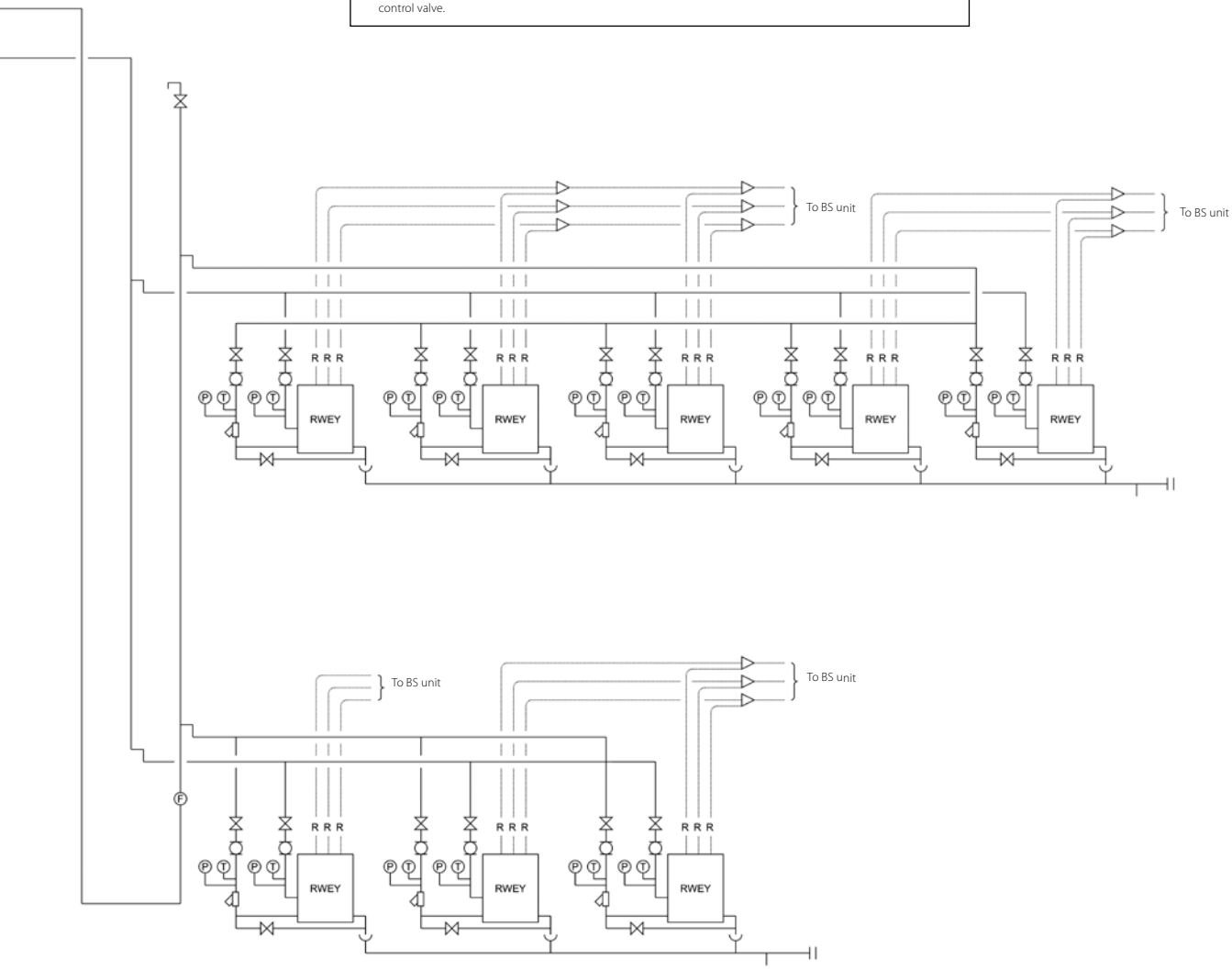

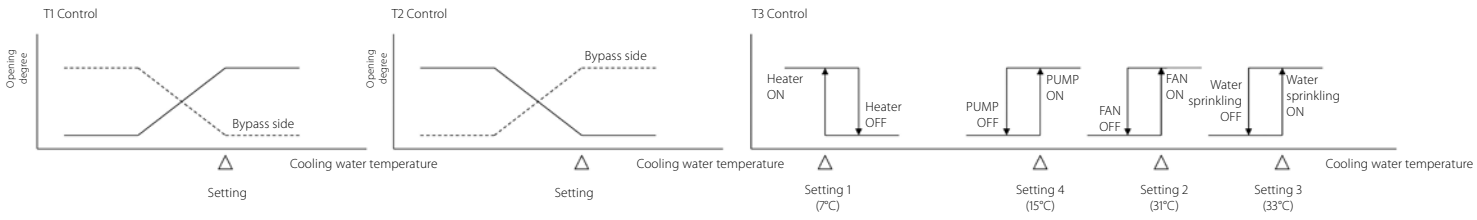

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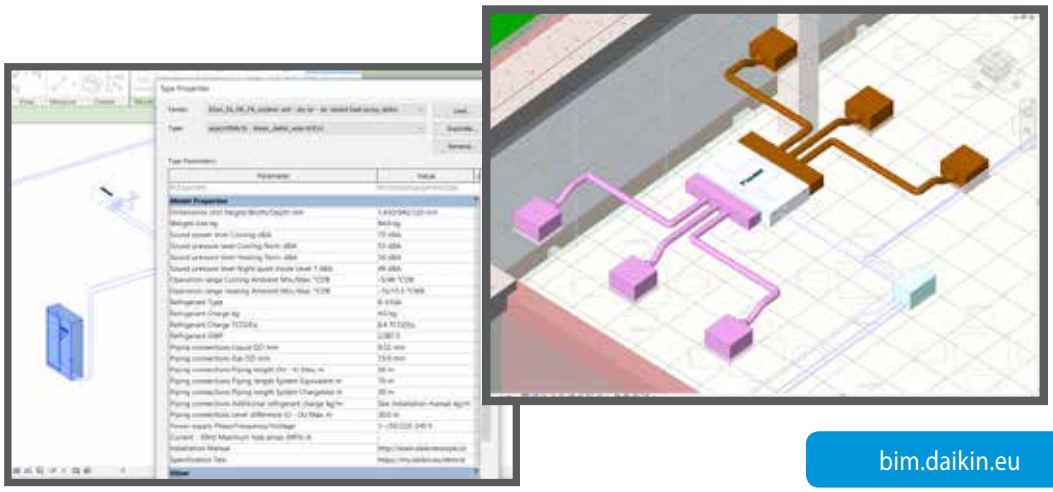

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