

VRV IV

360° efficiency



VRV IV heat recovery



Our new VRV IV heat recovery systems set pioneering standards in all-round climate comfort performance. Total design simplicity, offering rapid installation, full flexibility as well as absolute efficiency and comfort. Find out about all these revolutionary changes at www.daikineurope.com/vrviv

VRV IV =

3 revolutionary standards

- › Variable refrigerant temperature
- › Continuous comfort during defrost
- › VRV configurator

+ VRV IV technologies

+ Integrated climate control

+ VRV IV heat recovery technologies

3 intelligent efficiency improvements

Improved operational efficiency

- › Improved efficiency during heat recovery mode with 15%
- › Free heating or hot water by recovering heat from areas requiring cooling
- › Optimal comfort for everybody by simultaneous cooling spaces while heating others

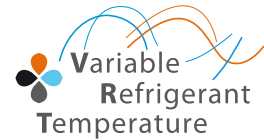
Improved design efficiency

- › Integrated climate control covering all thermal loads in the building
- › Free combination of outdoor units, single and multi BS boxes
- › Unique range of single and multi BS boxes

Improved installation efficiency

- › Fully redesigned multi BS boxes, smaller and up to 70% lighter
- › No limit on number of unused ports
- › Connect indoor units up to 28kW to a single and multi BS box

Variable refrigerant temperature



Customise your VRV for best seasonal efficiency and comfort

Thanks to its revolutionary variable refrigerant temperature technology (VRT), VRV IV continuously adjusts both the inverter compressor speed and the refrigerant temperature, providing the necessary capacity to meet the building load with the highest seasonal efficiency at all times!

- › **Seasonal efficiency increased by 28%**
- › **The first weather compensating control on the market**
- › **Customer comfort is assured thanks to higher outdoor temperatures (preventing cold draughts)**

How does it work?

VRV standard

Capacity is controlled only with the variance of the inverter compressor

Daikin VRV IV

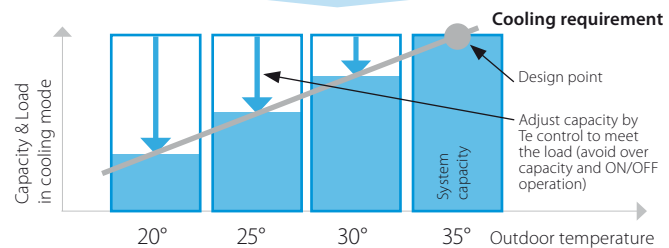
Variable Refrigerant Temperature control for energy saving in partial load condition. The capacity is controlled by the inverter compressor AND variation of the evaporating (T_e) and condensing (T_c) temperature of the refrigerant in order to achieve the highest seasonal efficiency.



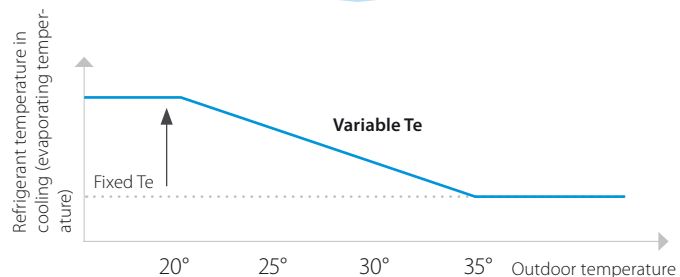
Calculate the benefit of variable refrigerant temperature for your project in our seasonal solutions calculator:

<http://extranet.daikineurope.com/en/software/downloads/solutions-seasonal-simulator/default.jsp>

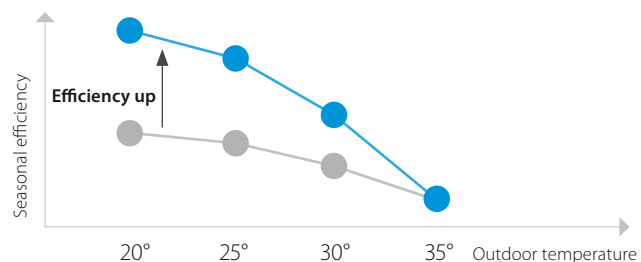
The colder it gets, the lower the load on the building and the lower the capacity need



The lower the capacity need the higher the refrigerant temperature can be



A higher refrigerant temperature results in a higher seasonal efficiency and higher comfort



Success story

Live test: up to 46% less energy consumed

A field trial was carried out at a fashion store chain in Germany and showed that the innovative Daikin VRV IV delivers dramatically better energy efficiency compared with previous models.

The trial results showed that the new VRV IV system consumed up to 60% less energy than the VRV III system, particularly during cooling. Overall energy savings during heating averaged 20%.

How effective is the VRV IV heat pump technology?

The trial demonstrated that by using air, an infinitely renewable and free energy source, the VRV IV system provides a complete and environmentally sustainable solution for heating, cooling and ventilation in commercial applications. The trial also showed that only by monitoring climate control systems carefully and intelligently businesses can identify and control energy waste. This is a service which Daikin also offers.

Different modes to maximise efficiency and comfort



Check on YouTube

<https://www.youtube.com/DaikinEurope>

For maximum energy efficiency and customer satisfaction, the outdoor unit needs to adapt the evaporating/condensing temperature at the optimum point for the application.

How to set the different modes?



Set up the main operation mode of the system	Define how the system reacts to changing loads	
<p>Step 1</p> <p>Automatic*</p> <p>Quick reaction speed Top efficiency</p> <p>The perfect balance: Achieves top efficiency throughout the year, reacts quickly on the hottest days</p>	<p>Step 2</p> <p>Powerful</p> <p>Quick</p> <p>Mild *</p>	<p>Where a quick increase of load is expected such as conference rooms. Quick reaction speed to changing load has priority, with temporarily colder outblow as a result.</p> <p>Same as above but slower response than the powerful mode.</p> <p>This mode would be suitable for most office applications and it is the factory set mode. The perfect balance: Slower reaction speed with top efficiency</p>
<p>High sensible (User selection)</p> <p>Quick reaction speed Top efficiency</p> <p>Year round top efficiency</p>	<p>Powerful</p> <p>Quick</p> <p>Mild</p> <p>Eco</p>	<p>Gives customer choice for fixing coil temperature which avoids cold draughts. A quick reaction speed to changing load has priority, with temporarily colder outblow as a result.</p> <p>Same as above but slower response.</p> <p>The air off temperature remains fairly constant. Suitable for low ceiling rooms.</p> <p>Coil temperature would not change due to fluctuating load. Suitable for computer rooms. Suitable for low ceiling rooms.</p>
<p>Basic Current VRF standard</p>	<p>No submodes</p>	<p>This is how most other VRF systems work and can be used for all general type of applications. Suitable for computer rooms. Suitable for low ceiling rooms.</p>

* Factory setting

	VRV III 20HP (2 modules)	VRV IV 18HP (1 module)
Period	March 2012 - February 2013	March 2013 - February 2014
Avg (kWh/Month)	2.797	1.502
Total (kWh)	33.562	18.023
Total (€)	6.041	3.244
Yearly (operation cost/m² (€/m²))	9,9	5,3
46% savings = € 2.797		

Measured data

Fashion store Unterhaching (Germany)

- > Floor space: 607m²
- > Energy cost: 0,18 €/kWh
- > System taken into account for consumption:
 - VRV IV heat pump with continuous heating
 - Round flow cassettes (without auto cleaning panel)
 - VAM for ventilation (2x VAM2000)
 - Biddle Air curtain.

Continuous heating during defrost mode



Pure comfort

VRV IV continues to provide heating even when in defrost mode, providing an answer to any perceived disadvantages of specifying a heat pump as a monovalent heating system.

- › Indoor comfort not affected either via the unique heat accumulating element or alternate defrost
- › The best alternative to traditional heating systems



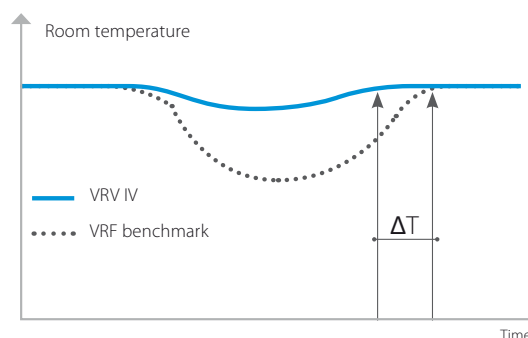
Check on
YouTube

<https://www.youtube.com/DaikinEurope>

Heat pumps are known for their high energy efficiency in heating, but they accumulate ice during heating operation and this must be melted periodically using a defrost function that reverses the refrigeration cycle. This causes a temporary temperature drop and reduced comfort levels inside the building.

Defrosting can take over 10 minutes (depending on the size of the system) and occurs mostly between -7 and +7°C when there is most moisture in the air, which freezes to the coil, and this has a significant impact on the perceived indoor comfort levels and running costs.

The VRV IV has changed the heating paradigm by providing heat even during defrost operation thus eliminating the temperature drop inside and providing comfort at all times.





How does it work?

Heat accumulating element

For the VRV IV heat pump single models a unique heat-accumulating element is used. This element, based upon phase change materials, provides the energy to defrost the outdoor unit. The energy needed for defrosting is stored in the element during normal heating operation.

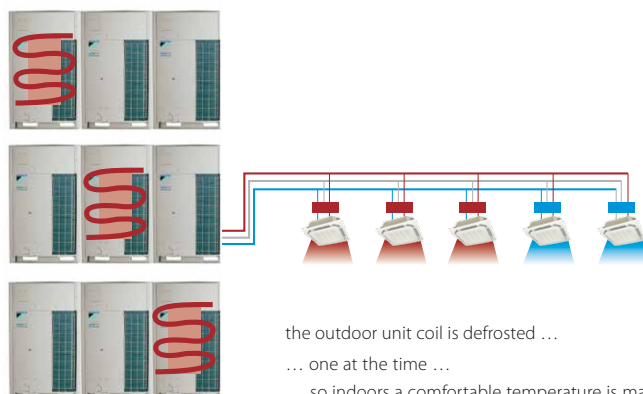
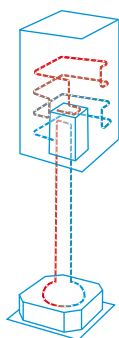
Alternate defrost

On all our multi model combinations only 1 outdoor coil is defrosted at a time, ensuring continuous comfort during the whole process.

The outdoor unit coil is defrosted ...

... with the energy stored in the heat accumulating element ...

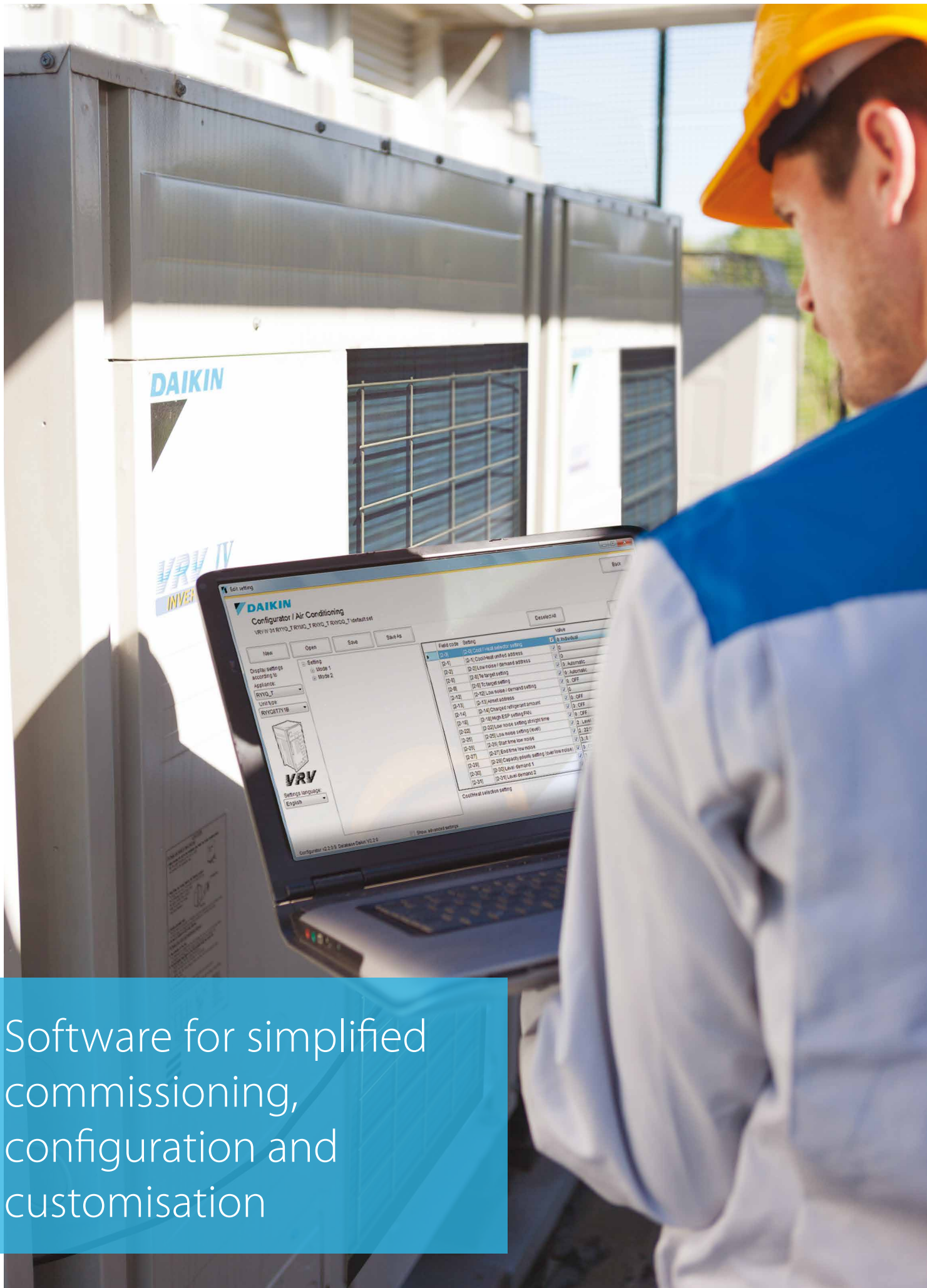
... while indoors a comfortable temperature is maintained.



the outdoor unit coil is defrosted ...

... one at the time ...

... so indoors a comfortable temperature is maintained



Software for simplified
commissioning,
configuration and
customisation

VRV

configurator software

- › **Graphical interface**
- › **Manage systems over multiple sites in exactly the same way**
- › **Retrieve initial settings**

Simplified commissioning

The VRV configurator is an advanced software solution that allows for easy system configuration and commissioning.

- › Less time is required on the roof to configure the outdoor unit
- › Multiple systems at different sites can be managed in exactly the same way, providing simplified commissioning for key accounts
- › Initial settings on the outdoor unit can be easily retrieved

Simplified servicing

The user-friendly display for outdoor units simplifies basic servicing tasks.

- › Easy-to-read error report
- › Easy-to-understand menu indicates quick and easy on-site settings
- › Easy-to-follow parameters for checking basic functions: high pressure, low pressure, frequency and operation time, compressor history, temperature of discharge/suction pipe.



3-digit 7-segment display



User-friendly interface instead of push buttons



Unique VRV IV core technologies



Newly developed compressor

Full inverter

- › Enabling variable refrigerant temperature and low start-up currents
- › Stepless capacity control

Reluctance brushless DC motor

- › increased efficiency compared to AC motors by simultaneously using normal and reluctance torque
- › Powerful neodymium magnets efficiently generate high torque
- › High-pressure oil reduces thrust losses

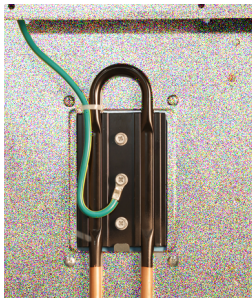
37 patents

High efficiency J-type 6-pole motor

- › 50% stronger magnetic field and higher rotation efficiency

Thixocasting process

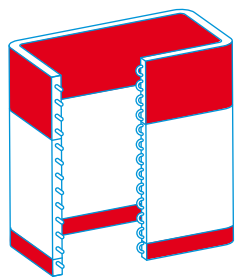
- › Compression volume is increased by 50% thanks to a new high-durability material cast in a semi-molten state



Refrigerant-cooled PCB

- › Reliable cooling because it is not influenced by ambient air temperature
- › Smaller switchbox for smoother air flow through the heat exchanger increasing heat exchange efficiency with 5%

6 patents



4-sided, 3-row heat exchanger

- › Heat exchange surface up to 50% larger (up to 235m²), leading to 30% more efficiency

10 patents

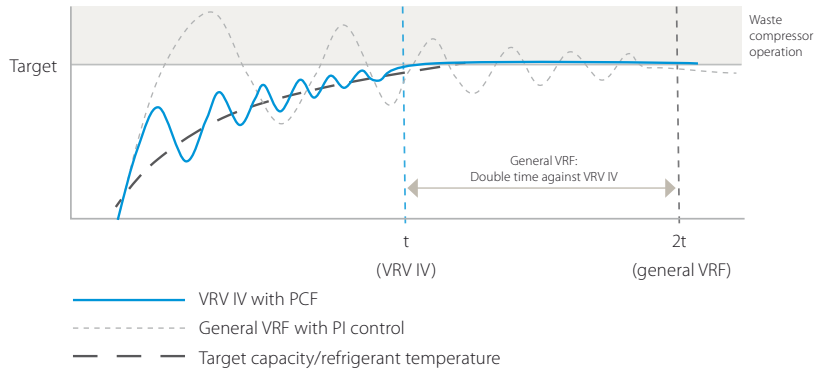


UNIQUE

Predictive Control Function (PCF)

- › Reaches the target capacity/refrigerant temperature faster
- › Reaches the target without overshooting, so there is no waste, leading to improved efficiency
- › Three capacity settings give more precise control for user comfort

The large number of Daikin systems already in operation and which are monitored by our i-Net software put us in the unique position of being able to analyse this data and develop the predictive compressor control function.



VRV IV: PCF

Compressor works with predictive data for the control

- › result: quick convergence to the target temperature and reduction of waste operation of the compressor

Half time against general VRF

General VRF: Pi control

Compressor works with feedback only for the control

- › result: waste operation and longer time before reaching target set point

DC fan motor

UNIQUE

Outer rotor DC motor for higher efficiency

- › Larger rotor diameter results in greater force for the same magnetic field, leading to better efficiency
- › Better control, resulting in more fan steps to match the actual capacity

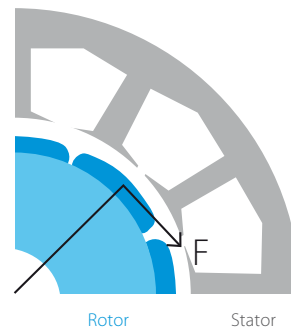
Sine wave DC inverter

Optimizing the sine wave curve results in smoother motor rotation and improved motor efficiency.

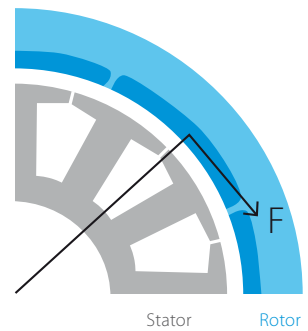
DC fan motor

The use of a DC fan motor offers substantial improvements in operating efficiency compared to conventional AC motors, especially during low speed rotation.

Conventional motor with inner rotor



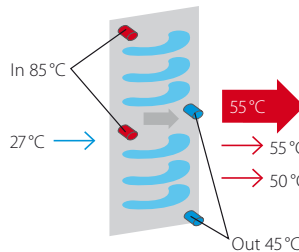
Daikin outer rotor



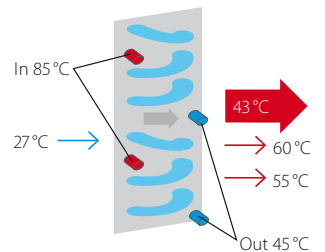
E-Pass heat exchanger

Optimising the heat exchanger's path layout prevents heat being transferred from the overheated gas section to the sub-cooled liquid section which is a more efficient way to use the heat exchanger.

Standard heat exchanger



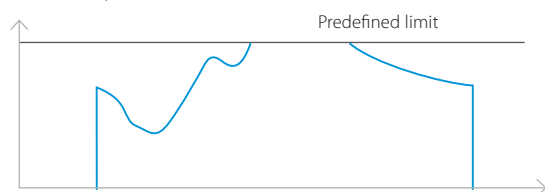
e-Pass heat exchanger



I-demand function

Limit maximum power consumption. The newly introduced current sensor minimizes the difference between the actual power consumption and the predefined power consumption.

Power consumption



The total solution

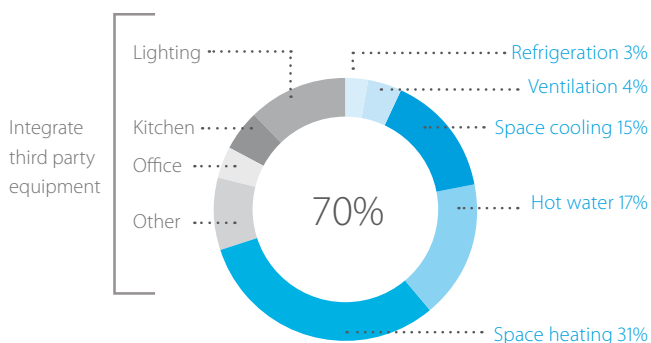


Typically, many buildings today rely on several separate systems for heating, cooling, air curtain heating and hot water. As a result energy is wasted. To provide a much more efficient alternative, VRV technology has been developed into a total solution managing up to 70% of a buildings energy consumption giving large potential to cost saving.

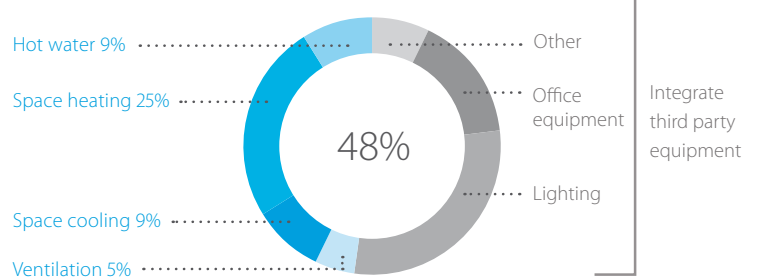
- › **Heating and cooling**
for year round comfort
- › **Hot water**
for efficient production of hot water
- › **Underfloor heating /cooling**
for efficient space heating/cooling
- › **Ventilation**
for high quality environments
- › **Air curtains**
for optimum air separation
- › **Controls**
for maximum operating efficiency

Combine up to 70% of your building's energy consumption

Average hotel energy consumption



Average office energy consumption





One system,
multiple applications for hotels,
offices, retail, home ...

Heating and cooling



- › Combine VRV indoor units with other stylish indoor units in one system
- › New round flow cassette sets the standard for efficiency and comfort

Intelligent control systems



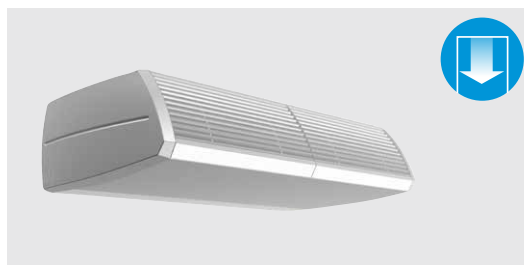
- › Mini BMS with connects Daikin and third-party equipment
- › Integrate intelligent control solutions with energy management tools to reduce running costs

Low-temperature hydrobox



- › Highly efficient space heating through:
 - Underfloor heating
 - Low temperature radiators
 - Heat pump convector
- › Hot water from 25 °C to 45 °C

Biddle air curtain



- › Payback time less than 1 year compared to electrical air curtain
- › A highly efficient solution for doorway climate separation

High temperature hydrobox*



*only for connection to VRV heat recovery

- › efficient hot water production for:
 - Showers
 - Sinks
 - Tapwater for cleaning
- › Hot water from 25 °C to 80 °C

Ventilation



- › Widest range in DX ventilation – from small heat recovery ventilation to large scale air handling units
- › Provides a fresh, healthy and comfortable environment

VRV IV heat recovery

Best efficiency
and comfort solution



“Free” heat and hot water production

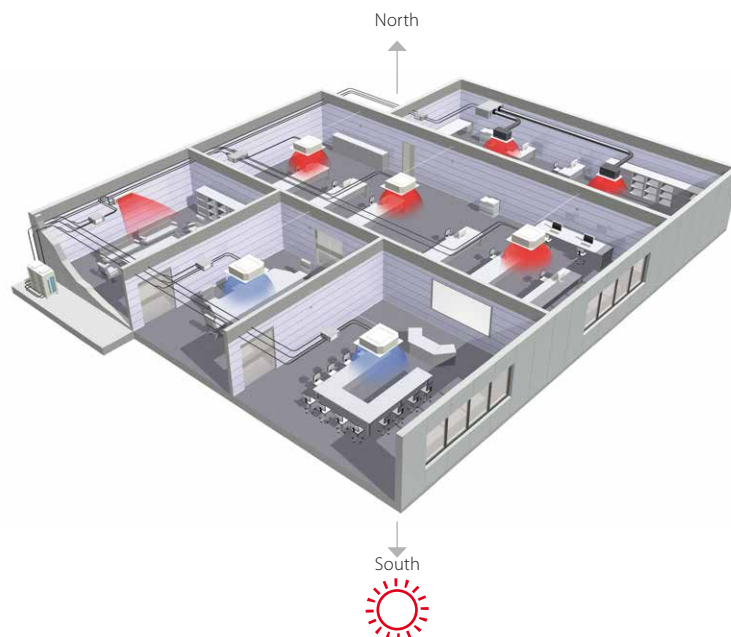
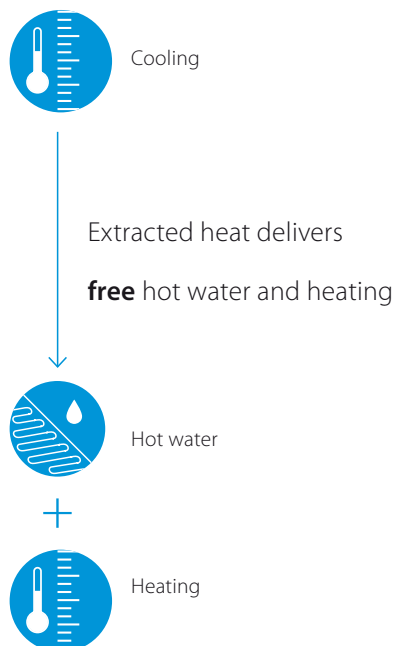
Until now, most commercial buildings have relied on separate systems for cooling, heating, hot water and so on, which results in a lot of wasted energy.

An integrated heat recovery system reuses heat from offices, server rooms, to warm other areas or create hot water.

Maximum comfort

A VRV heat-recovery system allows simultaneous cooling and heating.

- › For hotel owners, this means a perfect environment for guests as they can freely choose between cooling or heating.
- › For offices, it means a perfect working indoor climate for both north and south-facing offices.

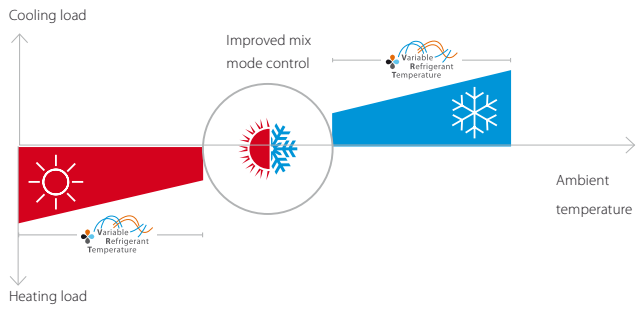




Fast design
 Quick installation
 More free heat
 Maximum comfort

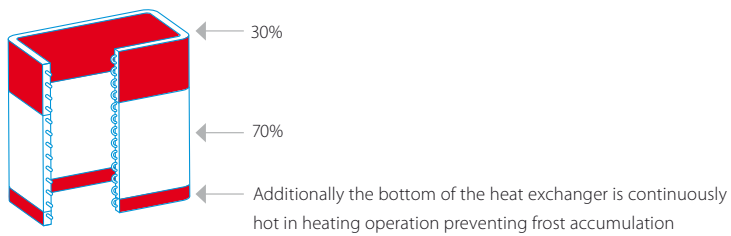
Improved efficiency

In heat-recovery operation the VRV IV is up to 15% more efficient. In full-load operation the seasonal efficiency is even as much as 28% more efficient than the VRV III thanks to variable refrigerant temperature.



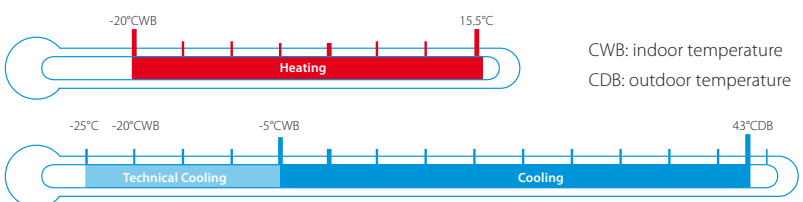
Optimised Partition of Heat Exchanger for highest seasonal efficiency in heat recovery mode

Vertically divided heat exchanger with an optimized ratio for mix mode operation. This improves heat recovery efficiency by reducing radiation losses.



Wide heating operation range

VRV IV heat recovery has a standard operation range down to -20°C in heating. It can also provide cooling down to -20°C for technical server rooms (field setting).



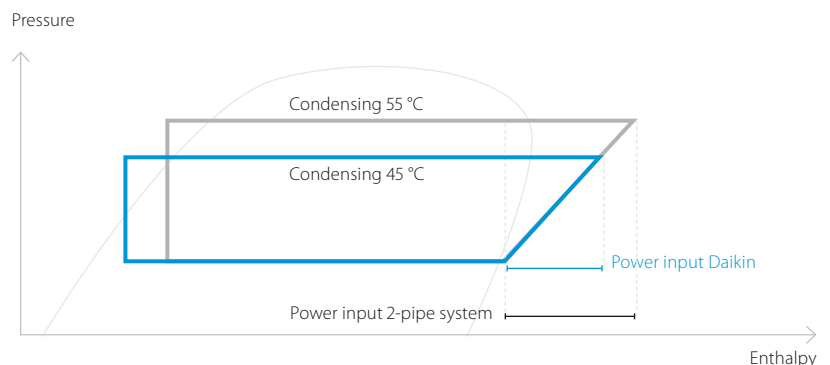


Advantages of 3-pipe technology

More “free” heat

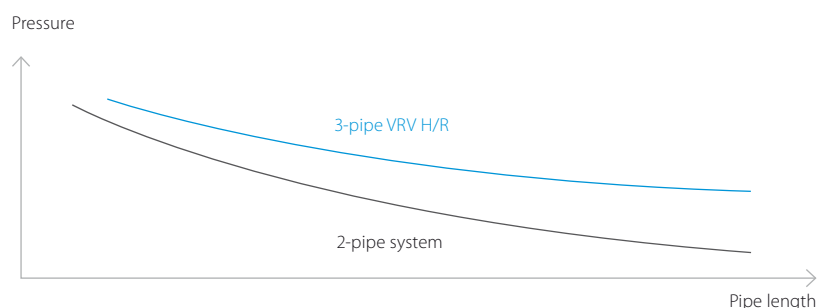
Daikin 3-pipe technology needs less energy to recover heat, meaning significantly higher efficiency during heat recovery mode. Our system can recover heat at a low condensing temperature because it has dedicated gas, liquid and discharge pipes.

In a 2-pipe system, gas and liquid travel as a mixture so the condensing temperature needs to be higher in order to separate the mixed gas and liquid refrigerant. The higher condensing temperature means more energy is used to recover heat resulting in lower efficiency.



Lower pressure drop means more efficiency

- › Smooth refrigerant flow in 3-pipe system thanks to 2 smaller gas pipes results in higher energy efficiency
- › Disturbed refrigerant flow in large gas pipe on 2-pipe system results in bigger pressure drop



Freely combine outdoor units

Combine outdoor units flexibly to reduce your carbon footprint, optimise your system for continuous heating, and achieve the highest efficiency.

Fully redesigned BS boxes

Maximum design flexibility and installation speed

- › Quickly and flexibly design your system with a unique range of single and multi BS boxes.
- › A wide variety of compact and lightweight multi BS boxes greatly reduces installation time.
- › Free combination of single and multi BS boxes

Single port

- › Unique to the market
- › Compact and light to install
- › No drain piping needed
- › Ideal for remote rooms
- › Technical cooling function
- › Connect up to 250 class unit (28 kW)
- › Allows multi-tenant applications



BS1Q 10, 16, 25 A

Multi port: 4 – 6 – 8 – 10 – 12 – 16

- › Up to 55% smaller and 41% lighter than previous range
- › Faster installation thanks to a reduced number of brazing points and wiring
- › All indoor units connectable to one BS box
- › Fewer inspection ports needed
- › Up to 16 kW capacity available per port
- › Connect up to 250 class unit (28kW) by combining 2 ports
- › No limit on unused ports, permitting phased installation



BS 4 Q14 A

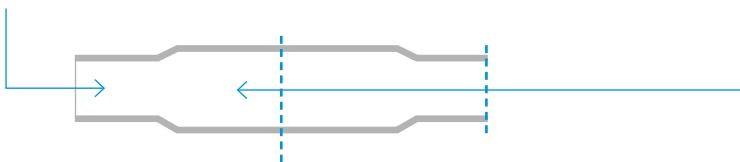
BS 6, 8 Q14 A

BS 10, 12 Q14 A

BS 16 Q14 A

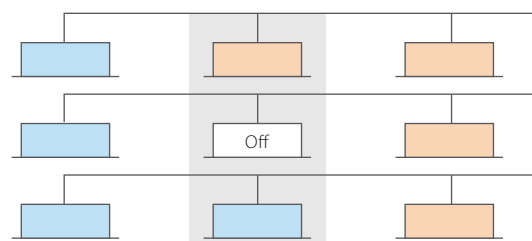
Faster installation thanks to open connection

- › No need to cut the pipe before brazing – for indoor units smaller or equal to 5.6 kW (50 class)
- › Cut and braise the pipe – for indoor units bigger or equal to 7.1 kW (63 class)



Maximum comfort at all times

With the VRV BS box, any indoor unit not being used to switch between heating and cooling maintains the constant desired temperature. This is because our heat recovery system does not need to equalise pressure over the entire system after a change-over.



VRV IV outdoor unit products overview



VRV IV heat recovery

- › Fully integrated solution with heat recovery for maximum efficiency with COPs of up to 8!
- › Covers all thermal needs of a building via 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
- › Perfect personal comfort for guests/tenants via simultaneous cooling and heating
- › Incorporates VRV IV standards and technologies such as variable refrigerant temperature and continuous heating
- › Unique range of single- and multi BS boxes

VRV IV heat pump

- › 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
- › Can be connected to stylish indoor units (Daikin Emura, Nexura)
- › Incorporates VRV IV standards and technologies such as variable refrigerant temperature and continuous heating



Replacement VRV IV

- › Cost-effective and fast replacement through re-use of existing piping
- › Up to 40% more efficient than R-22 systems
- › No interruption of daily business while replacing your system
- › Replace Daikin and other manufacturers' systems safely
- › Incorporates VRV IV standards and technologies such as variable refrigerant temperature

Water cooled VRV IV

- › Reduces CO₂ emissions by using geothermal energy as an energy source
- › Geothermal mode eliminates need for an external heating or cooling source
- › 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
- › Compact and lightweight design can be stacked for maximum space saving
- › Incorporates VRV IV standards and technologies such as variable refrigerant temperature
- › Variable water flow control option increases flexibility and control

VRV IV heat recovery

Outdoor system		REYQ	8T	10T	12T	14T	16T	18T	20T	
Capacity range		HP	8	10	12	14	16	18	20	
Cooling capacity	Nom.	kW	22.4 (1) (2)	28.0 (1) (2)	33.5 (1) (2)	40.0 (1) (2)	45.0 (1) (2)	50.4	56.0	
Heating capacity	Nom.	kW	22.4 (3) (4)	28.0 (3) (4)	33.5 (3) (4)	40.0 (3) (4)	45.0 (3) (4)	50.4	56.0	
	Max.	kW	25.0	31.5	37.5	45.0	50.0	56.5	63.0	
Power input - 50Hz	Cooling	Nom.	kW	5.31 (1) / 4.56 (2)	7.15 (1) / 6.19 (2)	9.23 (1) / 8.31 (2)	10.7 (1) / 9.61 (2)	12.8 (1) / 11.9 (2)	15.2	18.6
	Heating	Nom.	kW	4.75 (3) / 4.47 (3)	6.29 (3) / 5.47 (3)	8.05 (3) / 6.83 (3)	9.60 (3) / 9.37 (3)	11.2 (3) / 9.88 (3)	12.3	14.9
		Max.	kW	5.51	7.38	9.43	11.3	12.9	14.3	17.5
EER			4.22 (1) / 4.92 (2)	3.92 (1) / 4.52 (2)	3.63 (1) / 4.03 (2)	3.74 (1) / 4.16 (2)	3.52 (1) / 3.79 (2)	3.32	3.01	
COP - Max.			4.54	4.27	3.98	3.88	3.88	3.95	3.60	
COP - Nom.			4.72 (3) / 5.01 (3)	4.45 (3) / 5.12 (3)	4.16 (3) / 4.90 (3)	4.17 (3) / 4.27 (3)	4.02 (3) / 4.56 (3)	4.10	3.76	
ESEER			7.41	7.37	6.84	7.05	6.63	6.26	5.68	
Maximum number of connectable indoor units			64 (5)							
Indoor index connection	Min./Nom./Max.		100/200/260	125/250/325	150/300/390	175/350/455	200/400/520	225/450/585	250/500/650	
Dimensions	Unit	HeightxWidthxDepth	mm							
Weight	Unit		210	1,685x930x765		218	304	305	337	
Fan	Air flow rate	Cooling	Nom.	m ³ /min		162	175	185	223	260
Sound power level	Cooling	Nom.	dBA			78	79	81	86	88
						58	58	61	64	65
Sound pressure level	Cooling	Nom.	dBA	Level 1		56	58	58	58	60
				Level 2		55	54	54	52	52
				Level 3		53	52	52	47	48
Operation range	Cooling	Min.-Max.	°CDB			-5.0~-43.0				
	Heating	Min.-Max.	°CWB			-20~-15.5				
Refrigerant	Type / GWP		R-410A / 2,087.5							
Piping connections	Charge		kg/TCO ₂	9.7/20.2	9.8/20.5	9.9/20.7	11.8/24.6			
	Liquid	OD	mm	9.52			12.7	15.9		
	Gas	OD	mm	19.1	22.2			28.6	28.6	
	Discharge gas	OD	mm	15.9	19.1				22.2	
Power supply	Total piping length	System	Actual	m		1,000		28.6		
	Phase/Frequency/Voltage			Hz/V		3N~/50/380-415				
Current - 50Hz	Maximum fuse amps (MFA)		A	20	25	32	40	50		

Outdoor system		REYQ	10T	13T	16T	18T	20T	22T	24T	26T	28T	30T	32T
System	Outdoor unit module 1		REMQ5T		REYQ8T		REYQ10T		REYQ12T		REYQ14T		REYQ16T
	Outdoor unit module 2		REMQ5T	REYQ8T	REYQ10T	REYQ12T	REYQ16T	REYQ14T	REYQ12T	REYQ16T	REYQ18T	REYQ18T	REYQ16T
Capacity range		HP	10	13	16	18	20	22	24	26	28	30	32
Cooling capacity	Nom.	kW	28.0	36.4	44.8	50.4	55.9	61.5	67.4	73.5	78.5	83.9	90.0
Heating capacity	Nom.	kW	28.0	36.4	44.8	50.4	55.9	61.5	67.4	73.5	78.5	83.9	90.0
	Max.	kW	32.0	41.0	50.0	56.5	62.5	69.0	75.0	82.5	87.5	94.0	100.0
Power input - 50Hz	Cooling	Nom.	kW	6.34	8.48	10.62	12.46	14.54	16.38	18.11	19.93	22.03	24.43
	Heating	Nom.	kW	5.42	7.46	9.50	11.04	12.80	14.34	15.95	17.65	19.25	20.35
		Max.	kW	6.50	8.76	11.02	12.89	14.94	16.81	18.41	20.73	22.33	23.73
EER			4.42	4.29	4.22	4.04	3.84	3.75	3.72	3.69	3.56	3.43	
COP - Max.			4.92	4.68	4.54	4.38	4.18	4.10	4.07	3.98	3.92	3.96	
COP - Nom.			5.17	4.88	4.72	4.57	4.37	4.29	4.23	4.16	4.08	4.12	
ESEER - Automatic			7.77	7.54	7.41	7.38	7.06	7.07	6.87	6.95	6.72	6.48	
ESEER - Standard			6.55	6.36	6.25	5.98	5.68	5.54	5.46	5.41	5.23	5.03	
Maximum number of connectable indoor units			64										
Indoor index connection	Min.		125	162.5	200	225	250	275	300	325	350	375	400
	Nom.		250	325.0	400	450	500	550	600	650	700	750	800
	Max.		325	422.5	520	585	650	715	780	845	910	975	1,040
Piping connections	Liquid	OD	mm	9.52	12.7		15.9				19.1		
	Gas	OD	mm	22.2			28.6				34.9		
	Discharge gas	OD	mm	19.1		22.2				28.6			
	Total piping length	System	Actual	m		500				1,000			
Current - 50Hz	Maximum fuse amps (MFA)		A	40		50		63		80			
Continuous heating			v										

Outdoor system		REYQ	34T	36T	38T	40T	42T	44T	46T	48T	50T	52T	54T
System	Outdoor unit module 1		REYQ16T		REYQ8T	REYQ10T		REYQ12T		REYQ14T		REYQ16T	
	Outdoor unit module 2		REYQ18T	REYQ20T	REYQ12T		REYQ16T		REYQ16T		REYQ18T		REYQ18T
	Outdoor unit module 3		REYQ18T		REYQ18T		REYQ16T		REYQ16T		REYQ18T		REYQ18T
Capacity range		HP	34	36	38	40	42	44	46	48	50	52	54
Cooling capacity	Nom.	kW	95.4	101.0	106.3	111.9	118.0	123.5	130.0	135.0	140.4	145.8	151.2
Heating capacity	Nom.	kW	95.4	101.0	106.3	111.9	118.0	123.5	130.0	135.0	140.4	145.8	151.2
	Max.	kW	106.5	113.0	119.0	125.5	131.5	137.5	145.0	150.0	156.5	163.0	169.5
Power input - 50Hz	Cooling	Nom.	kW	28.0	31.4	29.74	31.58	32.75	34.83	36.3	38.4	40.8	43.2
	Heating	Nom.	kW	23.5	26.1	25.10	26.64	28.69	30.45	32.00	33.6	34.7	35.8
		Max.	kW	27.2	30.4	29.24	31.11	33.18	35.23	37.1	38.7	40.1	41.5
EER			3.41	3.22	3.57	3.54	3.60	3.55	3.58	3.52	3.44	3.38	
COP - Max.			3.92	3.72	4.07	4.03	3.96	3.90	3.91	3.88	3.90	3.93	
COP - Nom.			4.06	3.87	4.24	4.20	4.11	4.06	4.02	4.05	4.07	4.10	
ESEER - Automatic			6.43	6.06	6.66	6.68	6.79	6.68	6.75	6.63	6.49	6.37	
ESEER - Standard			4.97	4.70	5.25	5.20	5.28	5.20	5.23	5.14	5.03	4.93	
Maximum number of connectable indoor units			64										
Indoor index connection	Min.		425	450	475	500	525	550	575	600	625	650	675
	Nom.		850	900	950	1,000	1,050	1,100	1,150	1,200	1,250	1,300	1,350
	Max.		1,105	1,170	1,235	1,300	1,365	1,430	1,495	1,560	1,625	1,690	1,755
Piping connections	Liquid	OD	mm					19.1					
	Gas	OD	mm	34.9				41.3					
	Discharge gas	OD	mm	28.6				34.9					
	Total piping length	System	Actual	m				1,000					
Current - 50Hz	Maximum fuse amps (MFA)		A	80		100		125					
Continuous heating			v										

Outdoor unit module		REMQ	5T										
Dimensions	Unit	HeightxWidthxDepth	mm										
Weight	Unit		kg										
Fan	Air flow rate	Cooling	Nom.	m ³ /min									
Sound power level	Cooling	Nom.	dBA										
				77									
Sound pressure level	Cooling	Nom.	dBA										
				56									
Operation range	Cooling	Min.-Max.	°CDB			-5.0~-43.0							
	Heating	Min.-Max.	°CWB			-20~-15.5							
Refrigerant	Type / GWP		R-410A / 2,087.5										
	Charge		kg/TCO ₂										
Power supply	Phase/Frequency/Voltage		Hz/V										
Current - 50Hz	Maximum fuse amps (MFA)		A										
			20										

(1) Nominal cooling capacities are based on: indoor temperature: 27°CDB, 19°CWB, outdoor temperature: 35°CDB, equivalent refrigerant piping: 5m, level difference: 0m. Data for standard efficiency series. (2) Nominal cooling capacities are based on: indoor temperature: 27°CDB, 19°CWB, outdoor temperature: 35°CDB, equivalent refrigerant piping: 5m, level difference: 0m. Data for high efficiency series, Eurovent certified. (3) Nominal heating capacities are based on: indoor temperature: 20°CDB, outdoor temperature: 7°CDB, 6°CWB, equivalent refrigerant piping: 5m, level difference: 0m. Data for standard efficiency series. (4) Nominal heating capacities are based on: indoor temperature: 20°CDB, outdoor temperature: 7°CDB, 6°CWB, equivalent refrigerant piping: 5m, level difference: 0m. Data for high efficiency series, Eurovent certified. (5) 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%)

BS1Q-A Individual branch selector – VRV IV heat recovery

Indoor unit				BS	1Q10A	1Q16A	1Q25A
Power input	Cooling	Nom.		kW		0.005	
	Heating	Nom.		kW		0.005	
Maximum number of connectable indoor units					5		8
Maximum capacity index of connectable indoor units					15 < x ≤ 100	100 < x ≤ 160	160 < x ≤ 250
Dimensions	Unit	HeightxWidthxDepth		mm	207x388x326		
Weight	Unit			kg	12		15
Casing	Material				Galvanised steel plate		
	Piping connections	Outdoor unit	Liquid	Type/OD	mm	Brazing connection/9.5	
Gas			Type/OD	mm	Brazing connection/15.9		Brazing connection/22.2
Discharge gas			Type/OD	mm	Brazing connection/12.7		Brazing connection/19.1
Indoor unit		Liquid	Type/OD	mm	Brazing connection/9.5		
	Gas	Type/OD	mm	Brazing connection/15.9		Brazing connection/22.2	
Sound absorbing thermal insulation					Foamed polyurethane Flame-resistant needle felt		
Power supply	Phase/Frequency/Voltage			Hz/V	1~/50/220-240		
Total circuit	Maximum fuse amps (MFA)			A	15		

BS-Q14A Multi branch selector – VRV IV heat recovery

Indoor unit				BS	4Q14A	6Q14A	8Q14A	10Q14A	12Q14A	16Q14A
Power input	Cooling	Nom.		kW	0.043	0.064	0.086	0.107	0.129	0.172
	Heating	Nom.		kW	0.043	0.064	0.086	0.107	0.129	0.172
Maximum number of connectable indoor units					20	30	40	50	60	64
Maximum number of connectable indoor units per branch					5					
Number of branches					4	6	8	10	12	16
Maximum capacity index of connectable indoor units					400	600	750			
Maximum capacity index of connectable indoor units per branch					140					
Dimensions	Unit	HeightxWidthxDepth		mm	298x370x430	298x580x430		298x820x430		298x1,060x430
Weight	Unit			kg	17	24	26	35	38	50
Casing	Material				Galvanised steel plate					
	Piping connections	Outdoor unit	Liquid	OD	mm	9.5	12.7	12.7 / 15.9	15.9	15.9 / 19.1
Gas			OD	mm	22.2 / 19.1	28.6 / 22.2	28.6	28.6 / 34.9		34.9
Discharge gas			OD	mm	19.1 / 15.9	19.1 / 22.2	19.1 / 22.2 / 28.6	28.6		
Indoor unit		Liquid	OD	mm	9.5 / 6.4					
	Gas	OD	mm	15.9 / 12.7						
Drain					VP20 (I.D. 20/O.D. 26)					
	Sound absorbing thermal insulation					Urethane foam, polyethylene foam				
Power supply	Phase/Frequency/Voltage			Hz/V	1~/50/220-440					
Total circuit	Maximum fuse amps (MFA)			A	15					

BSVQ-P9B Individual branch selector – Water cooled VRV IV heat recovery

Indoor unit				BSVQ	100P9B	160P9B	250P9B
Power input	Cooling	Nom.		kW		0.005	
	Heating	Nom.		kW		0.005	
Maximum number of connectable indoor units					6		8
Maximum capacity index of connectable indoor units					15 < x ≤ 100	100 < x ≤ 160	160 < x ≤ 250
Dimensions	Unit	HeightxWidthxDepth		mm	207x388x326		
Weight	Unit			kg	12		15
Casing	Material				Galvanised steel plate		
	Piping connections	Outdoor unit	Liquid	Type/OD	mm	Brazing connection/9.5	
Gas			Type/OD	mm	Brazing connection/15.9		Brazing connection/22.2
Discharge gas			Type/OD	mm	Brazing connection/12.7		Brazing connection/19.1
Indoor unit		Liquid	Type/OD	mm	Brazing connection/9.5		
	Gas	Type/OD	mm	Brazing connection/15.9		Brazing connection/22.2	
Sound absorbing thermal insulation					Foamed polyurethane Flame-resistant needle felt		
Power supply	Phase/Frequency/Voltage			Hz/V	1~/50/220-240		
Total circuit	Maximum fuse amps (MFA)			A	15		

BSV4Q-PV/BSV6Q-PV Multi branch selector – Water cooled VRV IV heat recovery

Indoor unit				BSV4Q-PV/BSV6Q-PV	4Q100PV	6Q100PV
Power input	Cooling	Nom.		kW	0.020	0.030
	Heating	Nom.		kW	0.020	0.030
Maximum number of connectable indoor units					24	36
Maximum number of connectable indoor units per branch					6	
Number of branches					4	6
Maximum capacity index of connectable indoor units					400	600
Maximum capacity index of connectable indoor units per branch					100	
Dimensions	Unit	HeightxWidthxDepth		mm	209x1,053x635	
Weight	Unit			kg	60	
Casing	Material				Galvanised steel plate	
	Piping connections	Outdoor unit	Liquid	Type/OD	mm	Brazing connection/12.7
Gas			Type/OD	mm	Brazing connection/28.6	
Discharge gas			Type/OD	mm	Brazing connection/19.1	
Indoor unit		Liquid	Type/OD	mm	Brazing connection/9.5	
	Gas	Type/OD	mm	Brazing connection/15.9		
Sound absorbing thermal insulation					Foamed polyurethane Flame-resistant needle felt	
Power supply	Phase/Frequency/Voltage			Hz/V	1~/50/220-240	
Total circuit	Maximum fuse amps (MFA)			A	15	

VRV IV Heat Recovery

360° efficiency

installation
efficiency

design
efficiency

operational
efficiency



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