Supporting a circular economy of refrigerants

LOOP BY DAIKIN

Towards a circular economy of refrigerants

With L∞P by Daikin we want to step away from producing more waste. Instead we will reuse what is already available, in a qualitative way.

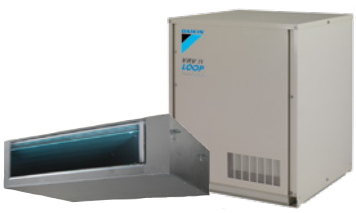
- **Saves over 400,000 kg of virgin refrigerant** being produced every year
- Greatly **reduces the CO_2 footprint of refrigerant production with 72%!**

For units produced and sold in Europe

- Exclusive to Daikin reclaimed gas is now used in our units
- Administratively allocated to VRV and chillers produced and sold in Europe

For more information visit
www.daikin.eu/loop-by-daikin

The most extensive VRV range on the market

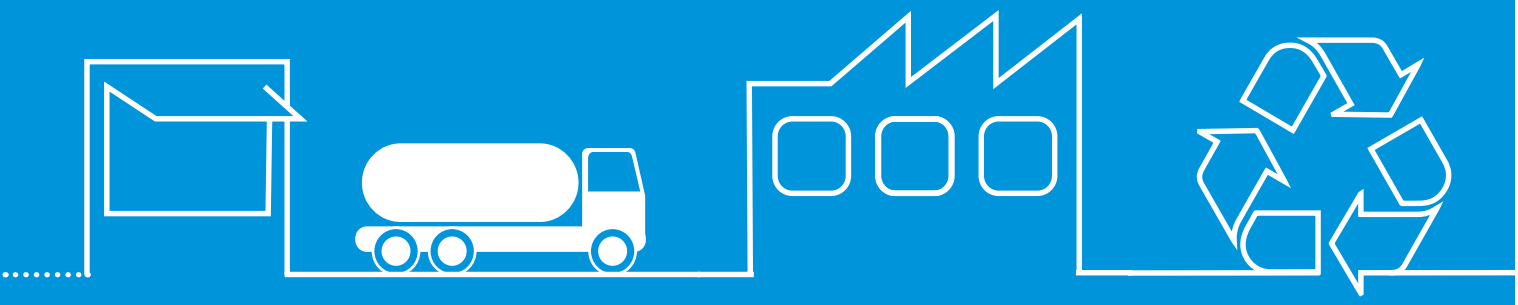


VRV i-series

VRV S-series

VRV W-series

Heat recovery, heat pump and replacement series



Recover

We recover your **old refrigerant** for you from any unit and any brand.

Reclaim

The refrigerant is reclaimed in Europe, meaning regenerated in a **high-quality** way, in line with F-gas regulation definition.

Reuse

The reclaimed refrigerant is mixed with virgin refrigerant. The refrigerant's quality is **certified** by an independent laboratory. It meets AHRI 700 certified standards.

400,000kgs/year

72% lower CO_2 fooprint for production

For every application, a solution

Heat recovery with unique 3-pipe technology

Heat pump models with unique continuous heating during defrost

Dedicated **hot and cold climate** heat pumps offering efficient cooling up to 52°C and heating down to -25°C

Space saving mini VRV solutions, offering the most compact VRV

The invisible VRV, a unique solution when the outdoor unit must be compact and completely invisible

Replacement solutions to replace existing systems in **the most cost-effective way**

Water-cooled heat recovery and heat pump units, ideal for high rise buildings using water as heat source

A **complete total** solution integrating a wide range of indoor units, air curtains, hot water **hydroboxes** and **ventilation** units including air handling units

Perial Asset Management

L∞P by Daikin is assisting clients in creating their own circular economy of refrigerants

Perial Asset Management (Perial AM) manages a diverse real estate portfolio mainly located in France and increasingly in Europe. The company is committed to reducing energy and water consumption as part of a continuous improvement process.

The arrival of new tenants at an office building in Boulogne-Billancourt spurred Perial Asset Management's decision to carry out renovation work to meet Perial AM's CSR objectives.

Constructed in the 1990s, the refurbished building extends over a surface area of 4,200 m^2 comprising the ground floor and seven stories, including offices and creating a 1,800 m^2 ERP area.
Working with Perial Asset Management (Perial AM), Daikin installed new VRV units with reclaimed refrigerant at their office building, while recycling the R-410A refrigerant from the old units to use it as a field charge for the new system.

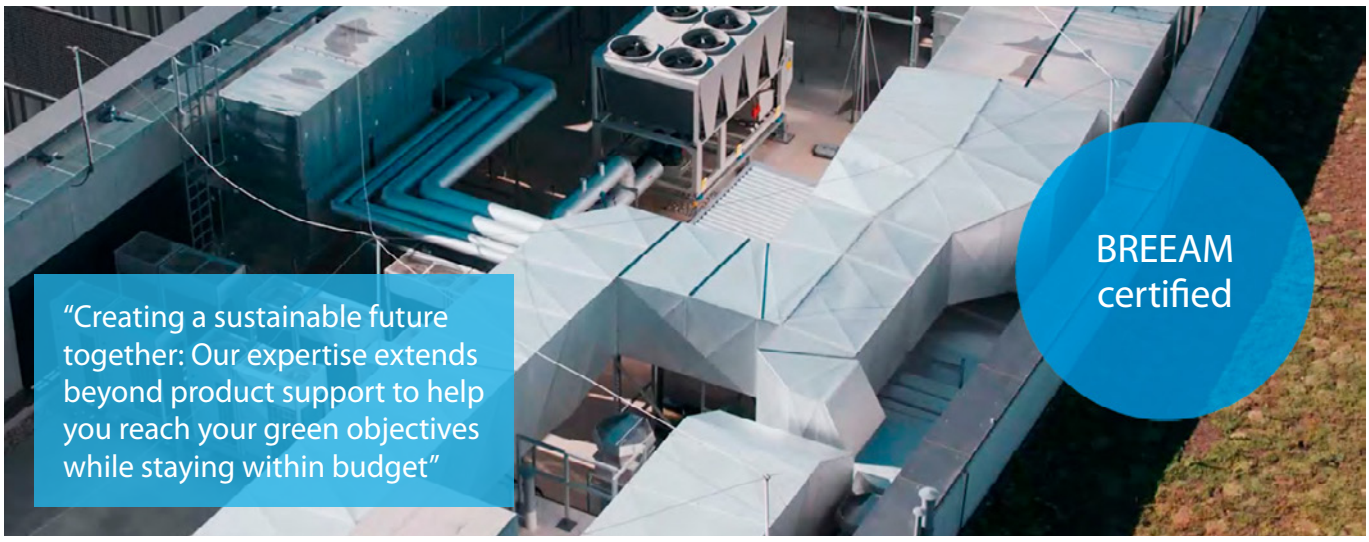
Daikin is the only manufacturer in the market able to offer customers a holistic approach to reusing their refrigerant in new projects via its L∞P by Daikin program.

Las Arenas historic hotel, opts for sustainable upgrade

- Choosing a sustainable replacement solution was on top of the agenda
- Separate temperature zones enable every room to be controlled individually, adjusting the comfort conditions to suit the individual or activity
- 88 outdoor units were replaced in a record six months
- A true circular economy example:
  - Reuse of copper piping and indoor units
  - Reuse of regenerated refrigerant

L1 complex Multifunctional building with BREEAM certification

- A total solution, including VRV heat pumps, multiple scroll chillers and Air Handling Units (AHUs), centrally managed through Daikin's Intelligent Touch Manager mini BMS
- Daikin's Accredited Professionals (AP's) collaborated with the project team to maximise the building's BREEAM rating
- Daikin heat pumps can contribute in 6 out of 10 BREEAM categories, adding up to 30 credits



More cases at: https://www.daikin.eu/en_us/about/case-studies.html

Innovation in detail

L∞P by Daikin

Make a positive choice and reuse refrigerant to avoid more than 400,000 kg of virgin gas being produced each year.

Inspired to help?
Find out more about Daikin's initiatives to build a circular economy of refrigerants: www.daikin.eu/building-a-circular-economy

LOOP BY DAIKIN

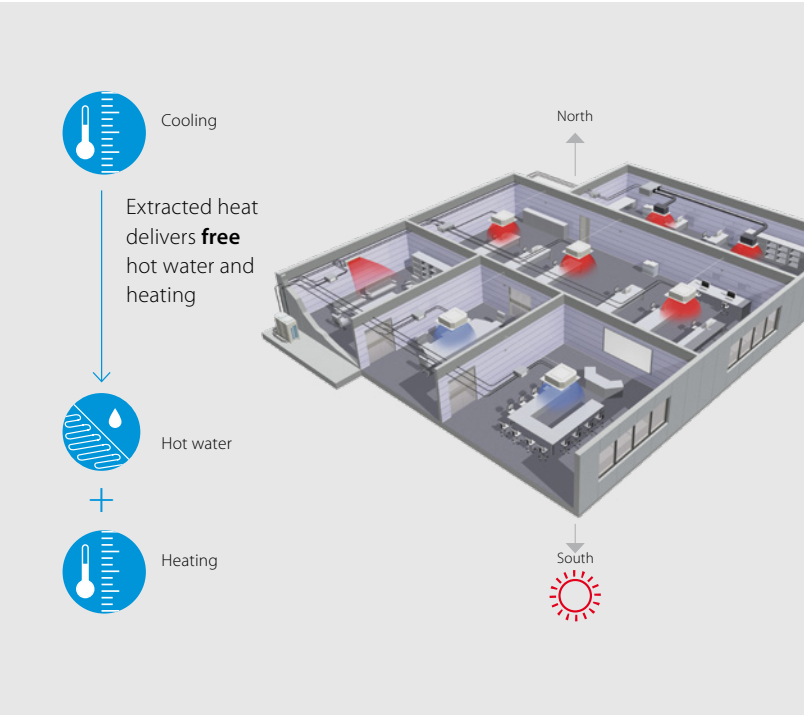
"Free" heat and hot water production

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.



Advantages of 3-pipe technology

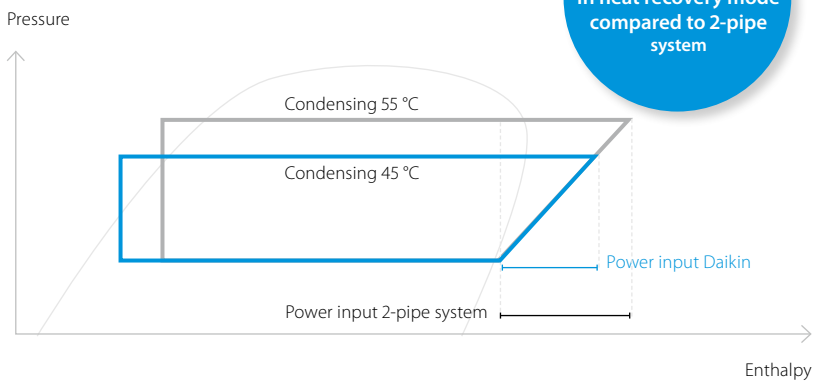
Efficient 3-pipe system

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.

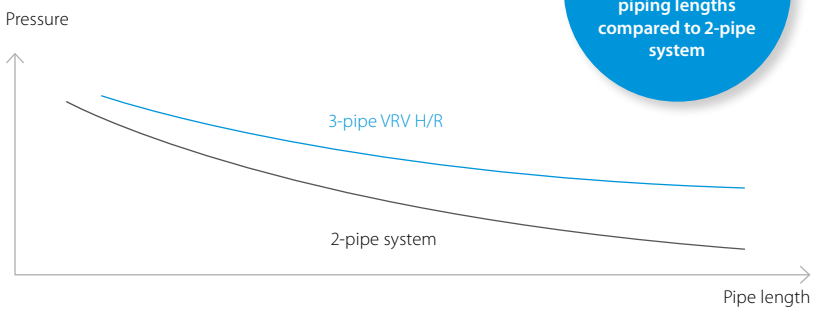
5 to 15% more efficient in heat recovery mode compared to 2-pipe system



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

Up to 5% more cooling capacity available at longer piping lengths compared to 2-pipe system



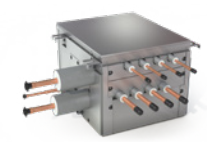
Maximum design flexibility and installation speed

- 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

BS1Q 10,16,25A

Multi port: 4 – 6 – 8 – 10 – 12 – 16



BS 4 Q14 A

BS 6, 8 Q14 A

BS 10, 12 Q14 A

BS 16 Q14 A

VRV IV+ heat recovery

Best efficiency & comfort solution

› Fully integrated solution with heat recovery for maximum efficiency with COPs of up to 8!
› 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 production provided by transferring heat from areas requiring cooling to areas requiring heating or hot water
› The perfect personal comfort for guests/tenants via simultaneous cooling and heating
› Incorporates VRV IV standards & technologies: Variable Refrigerant Temperature, continuous heating, VRV configurator, 7 segment display and full inverter compressors, 4-side heat exchanger, refrigerant cooled PCB, new DC fan motor
› Outdoor unit display for quick on-site settings and easy read out of errors together with the indication of service parameters for checking basic functions.
› Free combination of outdoor units to meet installation space or efficiency requirements
› Wide piping flexibility: 30m indoor height difference, maximum piping length: 190m, total piping length: 1,000m
› Possibility to extend the operation range in cooling down to -20°C for technical cooling operation such as server rooms
› Contains all standard VRV features

LOOP BY DAIKIN

For units made and sold in Europe*

ErP 2021 COMPLIANT

Already fully compliant to LOT 21 - Tier 2

Published data with real-life indoor units

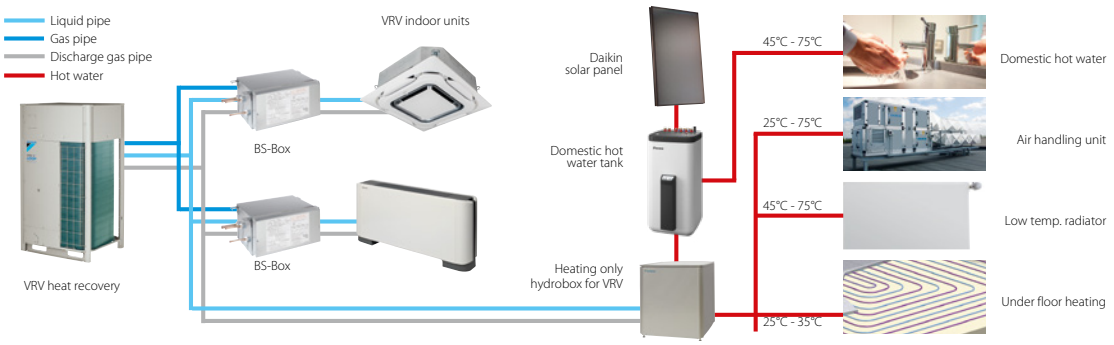
Outdoor unit				REYQ	8U	10U	12U	14U	16U	18U	20U
Capacity range				HP	8	10	12	14	16	18	20
Cooling capacity	Prated,c			kW	22.4	28.0	33.5	40.0	45.0	50.4	52.0
Heating capacity	Prated,h			kW	22.4	28.0	33.5	40.0	45.0	50.4	56.0
	Max.	6°CWB		kW	25.0	31.5	37.5	45.0	50.0	56.5	63.0
Recommended combination					4x FXFQ50AVEB	4x FXFQ63AVEB	6x FXFQ50AVEB	1x FXFQ50AVEB + 5x FXFQ63AVEB	4x FXFQ63AVEB + 2x FXFQ80AVEB	3x FXFQ50AVEB + 5x FXFQ63AVEB	2x FXFQ50AVEB + 6x FXFQ63AVEB
ηs,c				%	286.1	264.8	257.0	255.8	243.1	250.6	246.7
ηs,h				%	165.1	169.7	183.8	168.3	167.5	172.5	162.7
SEER					7.2	6.7	6.5		6.2	6.3	6.2
SCOP					4.2	4.3	4.7	4.3		4.4	4.1
Maximum number of connectable indoor units					64 (1)						
Indoor index connection	Min.				100.0	125.0	150.0	175.0	200.0	225.0	250.0
	Nom.				-						
	Max.				260.0	325.0	390.0	455.0	520.0	585.0	650.0
Dimensions	Unit	HeightxWidthxDepth		mm	1,685x930x765			1,685x1,240x765			
Weight	Unit			kg	230			314		317	
Sound power level	Cooling	Nom.		dBA	78.0	79.1	83.4	80.9	85.6	83.8	87.9
	Heating	Prated,h		dBA	79.6	80.9	83.5	83.9	86.9	85.3	89.8
Sound pressure level	Cooling	Nom.		dBA	57.0		61.0	60.0	63.0	62.0	65.0
Operation range	Cooling	Min.~Max.		°CDB	-5.0 ~43.0						
	Heating	Min.~Max.		°CWB	-20.0 ~15.5						
Refrigerant	Type/GWP				R-410A/2,087.5						
	Charge			kg/TCO2Eq	9.7/20.2	9.8/20.5	9.9/20.7	11.8/24.6			
Piping connections	Liquid	OD		mm	9.52		12.7			15.9	
	Gas	OD		mm	19.1	22.2	28.6				
	HP/LP gas	OD		mm	15.9	19.1		22.2			28.6
	Total piping length	System	Actual	m	1,000						
Power supply	Phase/Frequency/Voltage			Hz/V	3N~/50/380-415						
Current - 50Hz	Maximum fuse amps (MFA)			A	20	25	32		40		50

Outdoor unit system				REYQ	10U	13U	16U	18U	20U	22U	24U	26U	28U	30U	32U
System	Outdoor unit module 1				REMQ5U			REYQ8U		REYQ10U	REYQ8U		REYQ12U		REYQ16U
	Outdoor unit module 2				REMQ5U	REYQ8U		REYQ10U	REYQ12U		REYQ16U	REYQ14U	REYQ16U	REYQ18U	REYQ16U
Capacity range				HP	10	13	16	18	20	22	24	26	28	30	32
Cooling capacity	Prated,c			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	Prated,h			kW	28.0	36.4	44.8	50.4	55.9	61.5	67.4	73.5	78.5	83.9	90.0
	Max.	6°CWB		kW	32.0	41.0	50.0	56.5	62.5	69.0	75.0	82.5	87.5	94.0	100.0
Recommended combination					4x FXFQ63AVEB	3x FXFQ50AVEB + 3x FXFQ63AVEB	4x FXFQ63AVEB + 2x FXFQ80AVEB	4x FXFQ50AVEB + 4x FXFQ63AVEB	10x FXFQ50AVEB	6x FXFQ50AVEB + 4x FXFQ63AVEB	4x FXFQ50AVEB + 4x FXFQ63AVEB + 2x FXFQ80AVEB	7x FXFQ50AVEB + 5x FXFQ63AVEB	6x FXFQ50AVEB + 4x FXFQ63AVEB + 2x FXFQ80AVEB	9x FXFQ50AVEB + 5x FXFQ63AVEB	8x FXFQ63AVEB + 4x FXFQ80AVEB
ηs,c				%	275.1	301.3	288.6	272.9	266.0	260.4	257.7	257.5	251.9	266.8	243.1
ηs,h				%	158.8	160.6	168.2	167.9	175.7	178.5	167.6	175.5	174.8	179.4	169.1
SEER					7.0	7.6	7.3	6.9	6.7	6.6	6.5		6.4	6.7	6.2
SCOP					4.0	4.1	4.3		4.5		4.3	4.5	4.4	4.6	4.3
Maximum number of connectable indoor units					64 (1)										
Indoor index connection	Min.				125.0	163.0	200.0	225.0	250.0	275.0	300.0	325.0	350.0	375.0	400.0
	Nom.				-										
	Max.				325.0	423.0	520.0	585.0	650.0	715.0	780.0	845.0	910.0	975.0	1,040.0
Piping connections	Liquid	OD		mm	9.52	12.7		15.9				19.1			
	Gas	OD		mm	22.2	28.6					34.9				
	HP/LP gas	OD		mm	19.1		22.2		28.6						
	Total piping length	System	Actual	m	500				1,000						
Power supply	Phase/Frequency/Voltage			Hz/V	3N~/50/380-415										
Current - 50Hz	Maximum fuse amps (MFA)			A	40		50		63				80		

REYQ10,13,16,18,20,22U

More details and final information can be found by scanning or clicking the QR codes.

REYQ-U



Outdoor unit system			REYQ	34U	36U	38U	40U	42U	44U	46U	48U	50U	52U	54U
System	Outdoor unit module 1			REYQ16U		REYQ8U	REYQ10U		REYQ12U	REYQ14U	REYQ16U			REYQ18U
	Outdoor unit module 2			REYQ18U	REYQ20U	REYQ12U		REYQ16U					REYQ18U	
	Outdoor unit module 3			-		REYQ18U		REYQ16U				REYQ18U		
Capacity range			HP	34	36	38	40	42	44	46	48	50	52	54
Cooling capacity	Prated,c		kW	95.4	97.0	106.3	111.9	118.0	123.5	130.0	135.0	140.4	145.8	151.2
Heating capacity	Prated,h		kW	95.4	101.0	106.4	111.9	118.0	123.5	130.0	135.0	140.4	145.8	151.2
	Max.	6°CWB	kW	106.5	113.0	119.0	125.5	131.5	137.5	145.0	150.0	156.5	163.0	169.5
Recommended combination				3x FXFQ50AVEB + 9x FXFQ63AVEB + 2x FXFQ80AVEB	2x FXFQ50AVEB + 10x FXFQ63AVEB + 2x FXFQ80AVEB	6x FXFQ50AVEB + 10x FXFQ63AVEB	9x FXFQ50AVEB + 9x FXFQ63AVEB	12x FXFQ63AVEB + 4x FXFQ80AVEB	6x FXFQ50AVEB + 8x FXFQ63AVEB + 4x FXFQ80AVEB	1x FXFQ50AVEB + 13x FXFQ63AVEB + 4x FXFQ80AVEB	12x FXFQ63AVEB + 6x FXFQ80AVEB	3x FXFQ50AVEB + 13x FXFQ63AVEB + 4x FXFQ80AVEB	6x FXFQ50AVEB + 14x FXFQ63AVEB + 2x FXFQ80AVEB	9x FXFQ50AVEB + 15x FXFQ63AVEB
ηs,c			%	259.2	255.3	269.2	259.6	250.2	249.3	246.8	243.1	254.4	265.7	275.2
ηs,h			%	172.0	166.3	176.0	176.1	167.8	171.9	168.8	168.5	170.3	171.7	173.3
SEER				6.6	6.5	6.8	6.6	6.3		6.2		6.4	6.7	7.0
SCOP				4.4	4.2	4.5		4.3	4.4	4.3			4.4	
Maximum number of connectable indoor units				64 (1)										
Indoor index connection	Min.			425.0	450.0	475.0	500.0	525.0	550.0	575.0	600.0	625.0	650.0	675.0
	Nom.			-										
	Max.			1,105.0	1,170.0	1,235.0	1,300.0	1,365.0	1,430.0	1,495.0	1,560.0	1,625.0	1,690.0	1,755.0
Piping connections	Liquid	OD	mm	19.1										
	Gas	OD	mm	34.9	41.3									
	HP/LP gas	OD	mm	28.6		34.9								
	Total piping length	System Actual	m	1,000										
Power supply	Phase/Frequency/Voltage		Hz/V	3N~/50/380-415										
Current - 50Hz	Maximum fuse amps (MFA)		A	80		100					125			

Outdoor unit module			REMQ	5U
Dimensions	Unit	HeightxWidthxDepth	mm	1,685x930x765
Weight	Unit		kg	230
Fan	External static pressure	Max.	Pa	78
Sound power level	Cooling	Nom.	dBA	78.0
Sound pressure level	Cooling	Nom.	dBA	57.0
Operation range	Cooling	Min.~Max.	°CDB	-5.0 ~43.0
	Heating	Min.~Max.	°CWB	-20.0 ~15.5
Refrigerant	Type/GWP			R-410A/2,087.5
	Charge		kg/TCO2Eq	9.7/20.2
Power supply	Phase/Frequency/Voltage		Hz/V	3N~/50/380-415
Current - 50Hz	Maximum fuse amps (MFA)		A	20

(1)Actual number of connectable indoor units depends on the indoor unit type and the connection ratio restriction for the system (50% ≤ CR ≤ 120%)
Actual number of connectable indoor units depends on the indoor unit type and the connection ratio restriction for the system (50% ≤ CR ≤ 120%) | Contains fluorinated greenhouse gases
* EU member states, UK, Bosnia-Herzegovina, Serbia, Montenegro, Kosovo, Albania, North Macedonia, Iceland, Norway, Switzerland

VRV IV+ heat pump

Daikin's optimum solution with top comfort

- By choosing a LOOP by Daikin product you support the reuse of refrigerant, for more information visit www.daikin.eu/loop-by-daikin
- 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
- Wide range of indoor units: possibility to combine VRV with stylish indoor units (Daikin Emura, Perfera)
- Incorporates VRV IV standards & technologies: Variable Refrigerant Temperature, continuous heating, VRV configurator, 7 segment display and full inverter compressors, 4-side heat exchanger, refrigerant cooled PCB, new DC fan motor
- Outdoor unit display for quick on-site settings and easy read out of errors together with the indication of service parameters for checking basic functions.
- Free combination of outdoor units to meet installation space or efficiency requirements
- Available as heating only by irreversible field setting
- Contains all standard VRV features

LOOP BY DAIKIN

For units made and sold in Europe*

ErP 2021 COMPLIANT

Already fully compliant to LOT 21 - Tier 2

Published data with real-life indoor units

Outdoor unit				RYYQ/RXYQ	8U	10U	12U	14U	16U	18U	20U
Capacity range				HP	8	10	12	14	16	18	20
Cooling capacity	Prated,c			kW	22.4	28.0	33.5	40.0	45.0	50.4	52.0
Heating capacity	Prated,h			kW	22.4	28.0	33.5	40.0	45.0	50.4	56.0
	Max.	6°CWB		kW	25.0	31.5	37.5	45.0	50.0	56.5	63.0
Recommended combination					4x FXFQ50AVEB	4x FXFQ63AVEB	6x FXFQ50AVEB	1x FXFQ50AVEB + 5x FXFQ63AVEB	4x FXFQ63AVEB + 2x FXFQ80AVEB	3x FXFQ50AVEB + 5x FXFQ63AVEB	2x FXFQ50AVEB + 6x FXFQ63AVEB
ηs,c				%	302.4	267.6	247.8	250.7	236.5	238.3	233.7
ηs,h				%	167.9	168.2	161.4	155.4	157.8	163.1	156.6
SEER					7.6	6.8	6.3		6.0		5.9
SCOP					4.3		4.1	4.0		4.2	4.0
Maximum number of connectable indoor units					64 (1)						
Indoor index connection	Min.				100.0	125.0	150.0	175.0	200.0	225.0	250.0
	Max.				260.0	325.0	390.0	455.0	520.0	585.0	650.0
Dimensions	Unit	HeightxWidthxDepth		mm	1,685x930x765			1,685x1,240x765			
Weight	Unit			kg	198			275		308	
Sound power level	Cooling	Nom.		dBA	78.0	79.1	83.4	80.9	85.6	83.8	87.9
	Heating	Prated,h		dBA	79.6	80.9	83.5	83.1	86.5	85.3	89.8
Sound pressure level	Cooling	Nom.		dBA	57.0		61.0	60.0	63.0	62.0	65.0
Operation range	Cooling	Min.~Max.		°CDB	-5.0 ~43.0						
	Heating	Min.~Max.		°CWB	-20.0 ~15.5						
Refrigerant	Type/GWP				R-410A/2,087.5						
	Charge			kg/TCO2Eq	5.9/12.3	6.0/12.5	6.3/13.2	10.3/21.5	11.3/23.6	11.7/24.4	11.8/24.6
Piping connections	Liquid	OD		mm	9.52		12.7			15.9	
	Gas	OD		mm	19.1	22.2	28.6				
	Total piping length	System	Actual	m	1,000						
Power supply	Phase/Frequency/Voltage			Hz/V	3N~/50 /380-415						
Current - 50Hz	Maximum fuse amps (MFA)			A	20	25	32		40		50

Outdoor unit system			RYYQ/RXYQ	22U	24U	26U	28U	30U	32U	34U	36U	38U
System	Outdoor unit module 1			RXYQ10U	RXYQ8U	RXYQ12U			RXYQ16U			RXYQ8U
	Outdoor unit module 2			RXYQ12U	RXYQ16U	RXYQ14U	RXYQ16U	RXYQ18U	RXYQ16U	RXYQ18U	RXYQ20U	RXYQ10U
	Outdoor unit module 3			-								RXYQ20U
Capacity range			HP	22	24	26	28	30	32	34	36	38
Cooling capacity	Prated,c		kW	61.5	67.4	73.5	78.5	83.9	90.0	95.4	97.0	102.4
Heating capacity	Prated,h		kW	61.5	67.4	73.5	78.5	83.9	90.0	95.4	101.0	106.4
	Max.	6°CWB	kW	69.0	75.0	82.5	87.5	94.0	100.0	106.5	113.0	119.5
Recommended combination				6x FXFQ50AVEB + 4x FXFQ63AVEB	4x FXFQ50AVEB + 4x FXFQ63AVEB + 2x FXFQ80AVEB	7x FXFQ50AVEB + 5x FXFQ63AVEB	6x FXFQ50AVEB + 4x FXFQ63AVEB + 2x FXFQ80AVEB	9x FXFQ50AVEB + 5x FXFQ63AVEB	8x FXFQ63AVEB + 4x FXFQ80AVEB	3x FXFQ50AVEB + 9x FXFQ63AVEB + 2x FXFQ80AVEB	2x FXFQ50AVEB + 10x FXFQ63AVEB + 2x FXFQ80AVEB	6x FXFQ50AVEB + 10x FXFQ63AVEB
ηs,c			%	274.5	269.9	264.2	257.8	256.8	251.7	253.3	250.8	272.4
ηs,h			%	171.2	167.0	164.6	166.0	169.8	163.1	166.2	162.4	167.5
SEER				6.9	6.8	6.7	6.5		6.4		6.3	6.9
SCOP				4.4	4.3	4.2		4.3	4.2		4.1	4.3
Maximum number of connectable indoor units				64 (1)								
Indoor index connection	Min.			275.0	300.0	325.0	350.0	375.0	400.0	425.0	450.0	475.0
	Nom.			-								
	Max.			715.0	780.0	845.0	910.0	975.0	1,040.0	1,105.0	1,170.0	1,235.0
Piping connections	Liquid	OD	mm	15.9		19.1						
	Gas	OD	mm	28.6	34.9						41.3	
	Total piping length	System	Actual m	1,000								
Power supply	Phase/Frequency/Voltage		Hz/V	3N~/50 /380-415								
Current - 50Hz	Maximum fuse amps (MFA)		A	63				80				100