Watercooled VRV

VRV IV-W+

Low in refrigerant. High in performance.
Ideal where space is at a premium.

New for 2017

Watercooled VRV IV W+

VRV W+ is a brand new range of watercooled VRV IV systems is available from Daikin UK.

This new range doubles our previous capabilities to four condensers in 8, 10, 12 and 14hp capacities.

This new range builds on Daikin's existing watercooled technology, bringing unique and significantly improved capabilities to this growing product range.

Features

- Zero heat dissipation: unique benefit, as no need to cool the plant area
- Reliable low and high temperature hot water production
- Fully configurable inverter controlled water flow control
- Heat pump, heat recovery, standard and geothermal models - all in the same unified unit.
- Nine additional system combinations
- 40% more capacity from one system
- Smallest footprint
- 120kW in just 0.429m2 of floor space
- Free combination
- Air handling unit connectivity
- Highest efficiency
- Simple maintenance:
  - Rotating switch box
  - Remove all panels without disconnecting pipework

Watercooled VRV Applications

What makes watercooled VRV so versatile and suitable for so many buildings?

All applications:

- No defrost, high comfort
- Heat recovery over the entire building, not just per system
- Continuous high performance, regardless of ambient conditions
- Water flow control significantly reduces water pump power usage
- Variable Refrigerant Temperature control
- Easy compliance with building regulations:
  - High efficiency
  - Internally mounted so no sound or line-of-sight implications
- Easy servicing:
  - Remove all panels without disconnecting any pipes
  - 7 segment display – simple to read
- New controls possibilities:
  - 2 x user configurable hard wired outputs
  - On / off
  - Heat / cool
  - Limit capacity
  - Compressor run
  - Error + others

High Rise buildings:

- Maximise floor area by delivering 120kW of cooling within 0.429m^2 in a 3.2m plant room
- Situate condensers floor by floor internally or in internal plant areas
- Design specific heat rejection and injection solutions to match the application priorities

Hotels:

- Low refrigerant quantity for easier F-gas compliance
- Save over 1.1kg of refrigerant per hp of capacity compared with air cooled
- Reliable domestic hot water production

Geothermal Applications:

- High level of sustainability
- Lowest sound levels with almost no outdoor sound generation
- Ground or water source applications

Simple to connect to District Heating and Cooling networks

Ideal for shopping centers with a tenant supplied water loop.

DAIKIN

daikin.co.uk

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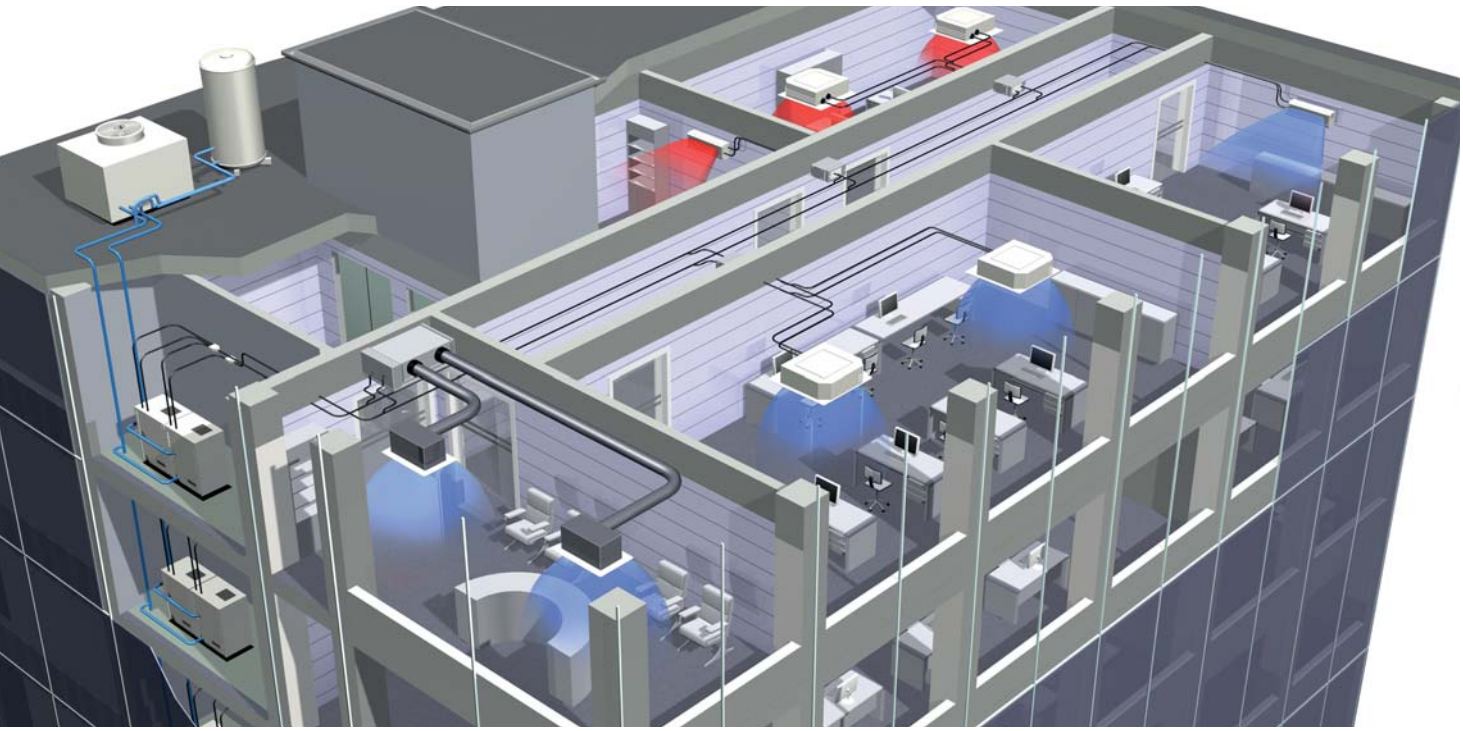


Watercooled VRV systems are increasingly becoming a sought after heating and cooling technology, especially for high rise and geothermal applications.

To meet the growing needs for highly flexible air conditioning solutions, Daikin is introducing a new and extended range of watercooled VRV systems. Watercooled VRV W+ has been completely redesigned from the base plate upwards to offer unique, new functionality and the highest level of performance.

The advantages of Watercooled VRV:

> A high degree of design flexibility
> Internal installation, where space is a premium
> Low sound to meet planning requirements easily
> Small footprint to optimise the available space
> Highly efficient operation
> Less refrigerant than an equivalent air cooled VRV
> Meet refrigerant quantity legislation easily.

New VRV IV W+ features:

> 8, 10, 12 & 14hp condensers
> Unique, patented zero heat dissipation technology
> Full access to all components without disconnecting piping
> Fully configurable water flow control
> User-friendly analogue contacts for simple control integration
> Connect high and low temperature hot water hydroboxes
> Highest efficiency

***Unique:**
Zero heat dissipation feature

Now there is no need to cool down the plant room when using watercooled condensers. Traditional units release heat from the compressor and PCB's into the surrounding air.

VRV W+ is unique in that it is self-cooling, making the condensers heat neutral wherever they are installed, meaning lower cost, quicker and easier installation.

Range overview

Horsepower	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42
VRV IV W+	Single module				Double module							Triple module						

Watercooled VRV
in Geothermal Applications

At the centre of our planet is a heat source of more than 5000°C. This heat emanates from the core to the surface which means that, under our feet, we have constant supply of free, renewable energy.

Geothermal heat has been used for over 10,000 years to keep us warm.

Evidence of its use exists today in areas such as Bath where the hot springs provide over a million litres of water at 46°C every day.

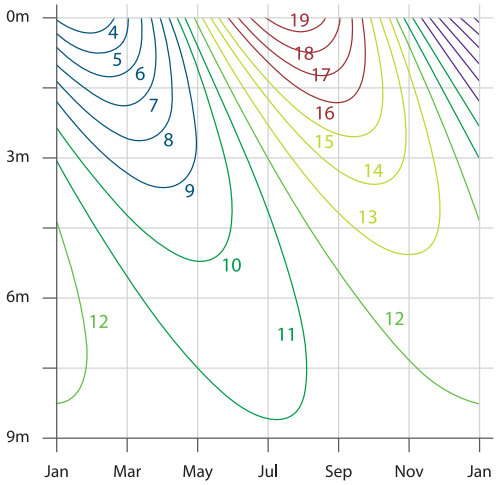
This water rises from a depth of 3 km under the city starting out at nearly 100°C and comes from a natural fissure in the earth's crust.

Bodies of water can also be used as a geothermal heat source, this includes lakes, aquifers, rivers and even the sea.

These heat sinks usually have reasonably stable year round temperatures, allowing heat pumps to work reliably with very high efficiency.

For the majority of people in the UK, access to geothermal heat means extracting it from underground,. Luckily, a usable amount of heat exists just below the surface.

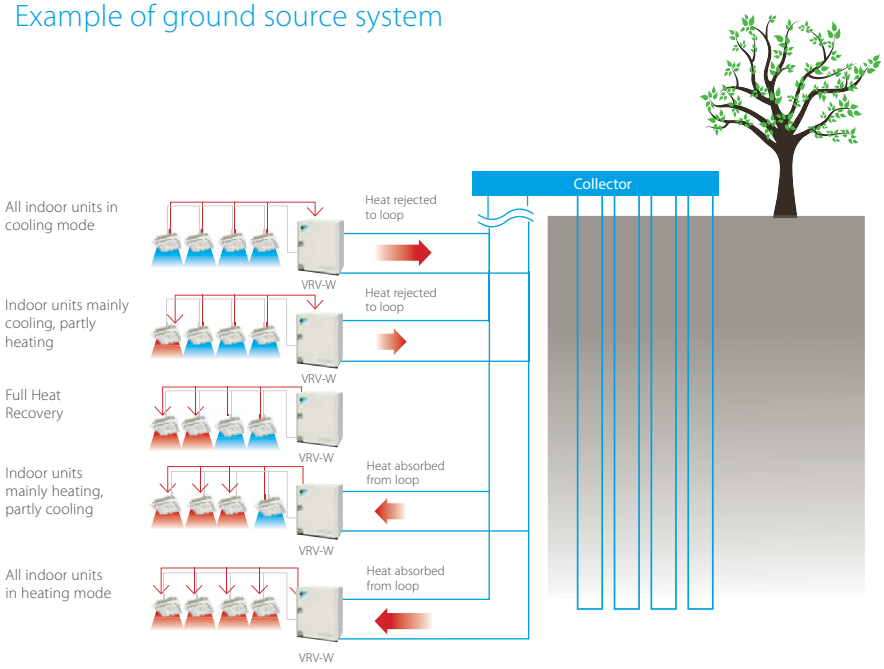
Temperature / ground depth graph



This diagram shows that at just 3m below the surface there is a stable, usable temperature all year round of between 9 and 14°C.

A water cooled heat pump can use this energy to provide heating and cooling throughout the year for almost any application.

Example of ground source system



Water cooled VRV is a perfect fit for geothermal ground or water source applications.

Using water temperatures from -10°C to 45°C, Watercooled VRV can produce efficient year-round heating and cooling from a renewable source to keep a building thermally comfortable for its occupants.

They can also treat fresh air in AHUs and produce hot water for space heating or domestic hot water.

R-410A

Heat Pump and Heat Recovery RWEYQ-T9 (8 to 18 hp)

VRV IV W+ Water Cooled Condensing Units

Outdoor Units			RWEYQ8T9	RWEYQ10T9	RWEYQ12T9	RWEYQ14T9	RWEYQ16T		RWEYQ18T	
							RWEYQ8T9	RWEYQ8T9	RWEYQ8T9	RWEYQ10T9
Capacity	Nominal Cooling	kW	22.4	28.0	33.5	40.0	44.8		50.4	
	Nominal Heating	kW	25.0	31.5	37.5	45.0	50		56.5	
EER			6.40	5.75	5.55	5.04	-		-	
COP			6.50	6.40	6.10	5.37	-		-	
Dimensions	Height	mm	980	980	980	980	980	980	980	980
	Width	mm	770	770	770	770	770	770	770	770
	Depth	mm	560	560	560	560	560	560	560	560
Weight		kg	185				185	185	185	185
Electrical Details	Power Supply	Phase /Hz/v	3ph / 50 / 400				3ph / 50 / 400		3ph / 50 / 400	
	Running Current	amps	6.5	9.0	10.0	12.6	6.5	6.5	6.5	9.0
	Starting Current	amps	4	4	4	4	4	4	4	4
	Fuse Rating	amps	25	25	25	25	25	25	25	25
Refrigerant Circuit	Refrigerant Type		R410A				R410A		R410A	
	Refrigerant Charge	kg	7.9		9.6		7.9	7.9	7.9	7.9
	Additional Charge	kg	data book				data book		data book	
Sound Pressure		dBA	47	51	54	57	47	47	47	51
Piping Limits	Maximum Length	m	165				165		165	
	Maximum Vertical Rise	m	50m if outdoor above IU / 40m if outdoor below IU				50m if outdoor above IU / 40m if outdoor below IU		50m if outdoor above IU / 40m if outdoor below IU	
Piping Connections	Liquid	inch (mm)	3/8 (9.5)		1/2 (12.7)		3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)
	HP / LP Gas Heat Pump	inch (mm)	3/4 (19.1)	7/8 (22.2)	1 1/8 (28.6)	1 1/8 (28.6)	3/4 (19.1)	3/4 (19.1)	3/4 (19.1)	7/8 (22.2)
	HP / LP Gas Heat recovery	inch (mm)	5/8 (15.9)	3/4 (19.1)		7/8 (22.2)	5/8 (15.9)	5/8 (15.9)	5/8 (15.9)	3/4 (19)
	Gas Discharge (HR only)	inch (mm)	3/4 (19.1)	7/8 (22.2)	1 1/8 (28.6)		3/4 (19.1)	3/4 (19.1)	3/4 (19.1)	7/8 (22.2)
	Drain	Outlet	14mm OD / 10mm ID per module				14mm OD / 10mm ID per module		14mm OD / 10mm ID per module	
	Water	Inlet & Outlet	ISO 228 - G1 1/4 B External thread - Per module				ISO 228 - G1 1/4 B External thread - Per module		ISO 228 - G1 1/4 B External thread - Per module	
Capacity Index Limit	VRV Indoor units	%	50-130				50-130		50-130	
	HR VRV I/U & HT Hydrobox	%	50-150				50-150		50-150	
Maximum Number of Connected Indoor Units			64				64		64	

Notes:

Daikin have introduced the new VRV IV W+ Water Cooled condensing unit to complement the rest of the VRV range. The water cooled system has a number of advantages over an air cooled system:
› High efficiencies & suitable for tall multi-storied buildings due to no limitations of water piping length & can be used with open and closed loop ground source systems
› Wide operation range with inlet water temperatures of -10°C to + 45°C & the system offers greater efficiency in heating mode as there is no defrost cycle required for the water loop

Heat Pump and Heat Recovery RWEYQ-T9 (20 to 28 hp)

VRV IV W+ Water Cooled Condensing Units

Outdoor Units			RWEYQ20T		RWEYQ22T		RWEYQ24T		RWEYQ26T		RWEYQ28T	
			RWEYQ10T9	RWEYQ10T9	RWEYQ10T9	RWEYQ12T9	RWEYQ12T9	RWEYQ12T9	RWEYQ12T9	RWEYQ14T9	RWEYQ14T9	RWEYQ14T9
Capacity	Nominal Cooling	kW	56		61.5		67		73.5		80	
	Nominal Heating	kW	63		69		75		82.5		90	
EER			-		-		-		-		-	
COP			-		-		-		-		-	
Dimensions	Height	mm	980	980	980	980	980	980	980	980	980	980
	Width	mm	770	770	770	770	770	770	770	770	770	770
	Depth	mm	560	560	560	560	560	560	560	560	560	560
Weight		kg	185	185	185	185	185	185	185	185	185	185
Electrical Details	Power Supply	Phase /Hz/v	3ph / 50 / 400		3ph / 50 / 400		3ph / 50 / 400		3ph / 50 / 400		3ph / 50 / 400	
	Running Current	amps	9	9	9	10	10	10	10	12.6	12.6	12.6
	Starting Current	amps	4	4	4	4	4	4	4	4	4	4
	Fuse Rating	amps	25	25	25	25	25	25	25	25	25	25
Refrigerant Circuit	Refrigerant Type		R410A		R410A		R410A		R410A		R410A	
	Refrigerant Charge	kg	7.9	7.9	7.9	9.6	9.6	9.6	9.6	9.6	9.6	9.6
	Additional Charge	kg	data book		data book		data book		data book		data book	
Sound Pressure		dBA	51	51	51	54	54	54	54	57	54	57
Piping Limits	Maximum Length	m	165		165		165		165		165	
	Maximum Vertical Rise	m	50m if outdoor above IU / 40m if outdoor below IU		50m if outdoor above IU / 40m if outdoor below IU		50m if outdoor above IU / 40m if outdoor below IU		50m if outdoor above IU / 40m if outdoor below IU		50m if outdoor above IU / 40m if outdoor below IU	
Piping Connections	Liquid	inch (mm)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)
	HP / LP Gas Heat Pump	inch (mm)	7/8 (22.2)	7/8 (22.2)	7/8 (22.2)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)	7/8 (22.2)	7/8 (22.2)	7/8 (22.2)
	HP / LP Gas Heat recovery	inch (mm)	3/4 (19.1)	3/4 (19.1)	3/4 (19.1)	3/4 (19.1)	3/4 (19.1)	3/4 (19.1)	3/4 (19.1)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)
	Gas Discharge (HR only)	inch (mm)	7/8 (22.2)	7/8 (22.2)	7/8 (22.2)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)
	Drain	Outlet	14mm OD / 10mm ID per module		14mm OD / 10mm ID per module		14mm OD / 10mm ID per module		14mm OD / 10mm ID per module		14mm OD / 10mm ID per module	
	Water	Inlet & Outlet	ISO 228 - G1 1/4 B External thread - Per module		ISO 228 - G1 1/4 B External thread - Per module		ISO 228 - G1 1/4 B External thread - Per module		ISO 228 - G1 1/4 B External thread - Per module		ISO 228 - G1 1/4 B External thread - Per module	
Capacity Index Limit	VRV Indoor units	%	50-130		50-130		50-130		50-130		50-130	
	HR VRV I/U & HT Hydrobox	%	50-150		50-150		50-150		50-150		50-150	
Maximum Number of Connected Indoor Units			64		64		64		64		64	

Notes:

The VRV IV W+ Water Cooled system is supplied as a common unit and can be used in either heat pump and heat recovery modes, from size 8 to 42 all using a three phase power supply.
The system is fully compatible with the full range of existing VRV fan coils and controls packages. It should be installed in a plant room.

R-410A

Heat Pump and Heat Recovery RWEYQ-T9 (30 to 34 hp)

VRV IV W+ Water Cooled Condensing Units

Outdoor Units			RWEYQ30T			RWEYQ32T			RWEYQ34T		
			RWEYQ10T9	RWEYQ10T9	RWEYQ10T9	RWEYQ10T9	RWEYQ10T9	RWEYQ12T9	RWEYQ10T9	RWEYQ12T9	RWEYQ12T9
Capacity	Nominal Cooling	kW	84			89.5			95		
	Nominal Heating	kW	94.5			100.5			106.5		
EER			-			-			-		
COP			-			-			-		
Dimensions	Height	mm	980	980	980	980	980	980	980	980	980
	Width	mm	770	770	770	770	770	770	770	770	770
	Depth	mm	560	560	560	560	560	560	560	560	560
Weight		kg	185	185	185	185	185	185	185	185	185
Electrical Details	Power Supply	Phase /Hz/v	3ph / 50 / 400			3ph / 50 / 400			3ph / 50 / 400		
	Running Current	amps	9	9	9	9	9	10	9	10	10
	Starting Current	amps	4	4	4	4	4	4	4	4	4
	Fuse Rating	amps	25	25	25	25	25	25	25	25	25
Refrigerant Circuit	Refrigerant Type		R410A			R410A			R410A		
	Refrigerant Charge	kg	7.9	7.9	7.9	7.9	7.9	9.6	7.9	9.6	9.6
	Additional Charge	kg	data book			data book			data book		
Sound Pressure		dBA	51	51	51	51	51	54	51	54	54
Piping Limits	Maximum Length	m	165			165			165		
	Maximum Vertical Rise	m	50m if outdoor above IU / 40m if outdoor below IU			50m if outdoor above IU / 40m if outdoor below IU			50m if outdoor above IU / 40m if outdoor below IU		
Piping Connections	Liquid	inch (mm)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	1/2 (12.7)	3/8 (9.5)	1/2 (12.7)	1/2 (12.7)
	HP / LP Gas Heat Pump	inch (mm)	7/8 (22.2)	7/8 (22.2)	7/8 (22.2)	7/8 (22.2)	7/8 (22.2)	1 1/8 (28.6)	7/8 (22.2)	1 1/8 (28.6)	1 1/8 (28.6)
	HP / LP Gas Heat recovery	inch (mm)	3/4 (19.1)	3/4 (19.1)	3/4 (19.1)	3/4 (19.1)	3/4 (19.1)	3/4 (19.1)	3/4 (19.1)	3/4 (19.1)	3/4 (19.1)
	Gas Discharge (HR only)	inch (mm)	7/8 (22.2)	7/8 (22.2)	7/8 (22.2)	7/8 (22.2)	7/8 (22.2)	1 1/8 (28.6)	7/8 (22.2)	1 1/8 (28.6)	1 1/8 (28.6)
	Drain	Outlet	14mm OD / 10mm ID per module			14mm OD / 10mm ID per module			14mm OD / 10mm ID per module		
	Water	Inlet & Outlet	ISO 228 - G1 1/4 B External thread - Per module			ISO 228 - G1 1/4 B External thread - Per module			ISO 228 - G1 1/4 B External thread - Per module		
Capacity Index Limit	VRV Indoor units	%	50-130			50-130			50-130		
	HR VRV I/U & HT Hydrobox	%	50-150			50-150			50-150		
Maximum Number of Connected Indoor Units			64			64			64		

Notes:

Daikin have introduced the new VRV IV W+ Water Cooled condensing unit to complement the rest of the VRV range. The water cooled system has a number of advantages over an air cooled system:

› High efficiencies & suitable for tall multi-storied buildings due to no limitations of water piping length & can be used with open and closed loop ground source systems

› Wide operation range with inlet water temperatures of -10°C to + 45°C & the system offers greater efficiency in heating mode as there is no defrost cycle required for the water loop

Heat Pump and Heat Recovery RWEYQ-T9 (36 to 42 hp)

VRV IV W+ Water Cooled Condensing Units

Outdoor Units			RWEYQ36T			RWEYQ38T			RWEYQ40T			RWEYQ42T		
			RWEYQ 12T9	RWEYQ 12T9	RWEYQ 12T9	RWEYQ 12T9	RWEYQ 12T9	RWEYQ 14T9	RWEYQ 12T9	RWEYQ 14T9	RWEYQ 14T9	RWEYQ 14T9	RWEYQ 14T9	RWEYQ 14T9
Capacity	Nominal Cooling	kW	100.5			107.0			113.5			120		
	Nominal Heating	kW	112.5			120.0			127.5			135		
EER			-			-			-			-		
COP			-			-			-			-		
Dimensions	Height	mm	980	980	980	980	980	980	980	980	980	980	980	980
	Width	mm	770	770	770	770	770	770	770	770	770	770	770	770
	Depth	mm	560	560	560	560	560	560	560	560	560	560	560	560
Weight		kg	185	185	185	185	185	185	185	185	185	185	185	185
Electrical Details	Power Supply	Phase /Hz/v	3ph / 50 / 400			3ph / 50 / 400			3ph / 50 / 400			3ph / 50 / 400		
	Running Current	amps	10	10	10	10	10	12.6	10	12.6	12.6	12.6	12.6	12.6
	Starting Current	amps	4	4	4	4	4	4	4	4	4	4	4	4
	Fuse Rating	amps	25	25	25	25	25	25	25	25	25	25	25	25
Refrigerant Circuit	Refrigerant Type		R410A			R410A			R410A			R410A		
	Refrigerant Charge	kg	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
	Additional Charge	kg	data book			data book			data book			data book		
Sound Pressure		dBA	54	54	54	54	54	57	54	57	57	57	57	57
Piping Limits	Maximum Length	m	165			165			165			165		
	Maximum Vertical Rise	m	50m if outdoor above IU / 40m if outdoor below IU			50m if outdoor above IU / 40m if outdoor below IU			50m if outdoor above IU / 40m if outdoor below IU			50m if outdoor above IU / 40m if outdoor below IU		
Piping Connections	Liquid	inch (mm)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)	1/2 (12.7)
	HP / LP Gas Heat Pump	inch (mm)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)	7/8 (22.2)	1 1/8 (28.6)	7/8 (22.2)	7/8 (22.2)	7/8 (22.2)	7/8 (22.2)	7/8 (22.2)
	HP / LP Gas Heat recovery	inch (mm)	3/4 (19.1)	3/4 (19.1)	3/4 (19.1)	3/4 (19.1)	3/4 (19.1)	1 1/8 (28.6)	3/4 (19)	1 1/8 (28.6)	7/8 (22.2)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)
	Gas Discharge (HR only)	inch (mm)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)	1 1/8 (28.6)
	Drain	Outlet	14mm OD / 10mm ID per module			14mm OD / 10mm ID per module			14mm OD / 10mm ID per module			14mm OD / 10mm ID per module		
	Water	Inlet & Outlet	ISO 228 - G1 1/4 B External thread - Per module			ISO 228 - G1 1/4 B External thread - Per module			ISO 228 - G1 1/4 B External thread - Per module			ISO 228 - G1 1/4 B External thread - Per module		
Capacity Index Limit	VRV Indoor units	%	50-130			50-130			50-130			50-130		
	HR VRV I/U & HT Hydrobox	%	50-150			50-150			50-150			50-150		
Maximum Number of Connected Indoor Units			64			64			64			64		

Notes:

The VRV IV W+ Water Cooled system is supplied as a common unit and can be used in either heat pump and heat recovery modes, from size 8 to 42 all using a three phase power supply.
The system is fully compatible with the full range of existing VRV fan coils and controls packages. It should be installed in a plant room.