Water cooled VRV IV W-series
Ideal for high rise buildings, using water as heat source

VRV IV standards:
Variable refrigerant temperature

Customize your VRV for best seasonal efficiency & comfort

› Full inverter compressors
› Reluctance brushless DC compressor
› Sine wave DC inverter
› Manual demand function

For more information on these features refer to the VRV IV technologies tab
* on request. Contact your local sales representative for more information
Geothermal operation and advantages

Geothermal operation uses the more stable temperature of the ground around the building, eliminating the need for another heat source. It reduces CO₂ emissions and is an infinitely renewable energy source.

Indoor installation makes unit invisible from the outside

Seamless integration in the surrounding architecture as you cannot see the unit

› Highly suited for sound sensitive areas as there is no external operation sound
› Superior efficiency, even in the most extreme outside conditions, especially in geothermal operation

Wide operation range

Standard water cooled outdoor units have a wide operation range between 10°C & 45°C inlet water temperature, both in heating and cooling. In geothermal mode the operation range is extended even more, down to -10°C* in heating and 6°C in cooling mode.

* Ethylene glycol should be added to the water when the water inlet temperature is below 5°C.
High energy efficiencies results from 2-stage heat recovery

**Stage 1: Heat recovery between indoor units in the same refrigerant circuit**
Heat exhausted from indoor units in cooling mode is transferred to units in areas requiring heating, maximising energy efficiency and reducing electricity costs.

**Stage 2: Heat recovery between the outdoor units via the water loop - also available on heat pump units!**
Second stage heat recovery is achieved within the water loop between the water cooled outdoor units.

*Above system configurations are for illustration purposes only.*
Space saving - Stacked configuration

The adoption of a new water heat exchanger and optimization of the refrigerant control circuit has resulted in the industry's most compact and lightweight design. The unit weight of 149kg* and height of 1,000 mm makes installation easy. Stacked configuration is also possible, contributing further to space savings.

* for 8HP unit

Variable water flow control

The variable water flow control option reduces energy use by the circulation pump by reducing the water flow when possible and not using a fixed water flow all the time.

Standard water strainer

A standard water strainer reduces installation time. The new filter also has less pressure drop at higher water flows.

Lower refrigerant levels

Water-cooled VRV systems typically have less refrigerant per system making it ideal to comply with the EN378 legislation limiting the amount of refrigerant in hospitals and hotels.

The refrigerant levels remain limited thanks to:

› limited distance between outdoor and indoor unit
› modularity: enabling small systems per floor instead of one big system. Thanks to the water circuit heat recovery is still possible in the entire building

<table>
<thead>
<tr>
<th>Specifications</th>
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<tbody>
<tr>
<td>Connections</td>
</tr>
<tr>
<td>PHE connections</td>
</tr>
<tr>
<td>Mesh size</td>
</tr>
<tr>
<td>Design Pressure</td>
</tr>
<tr>
<td>Design Temp.</td>
</tr>
<tr>
<td>Glycol resistance</td>
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<tr>
<td>Pressure drop</td>
</tr>
</tbody>
</table>
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

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 (28 kW) by combining 2 ports
› No limit on unused ports, permitting phased installation
› Allows multi-tenant applications

Flexible piping design

Flexible water piping

Water cooled VRV uses water as its heat source, so it is optimal for large buildings, including tall, multi-storey buildings, because the system can tolerate water pressure of up to 1.96 MPa. Furthermore, if the currently installed heat source’s water temperature is between 10°C and 45°C, it may be possible to use the existing water pipe work and heat source. This alone makes it an ideal system solution for building refubishment projects.

<table>
<thead>
<tr>
<th>Total piping length</th>
<th>300m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longest length actual (Equivalent)</td>
<td>120m (140m)</td>
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<tr>
<td>Longest length after first branch</td>
<td>40m (90m²)</td>
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<tr>
<td>Level difference between indoor and outdoor units</td>
<td>50m (40m²)</td>
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<tr>
<td>Level difference between indoor units</td>
<td>15m</td>
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</tbody>
</table>

1 Contact your local dealer for more information and restrictions
2 In case outdoor unit is located below indoor units
For Gerard Schröder the choice for this system was an easy one: ‘As far as I’m concerned, with the VRV Heat Recovery system, Daikin has the Rolls Royce in heat pump technology. If you want to build a sustainable office building, there really is no other alternative.’
Application examples

Dry cooler used for cooling, Chiller used for heating
Dry cooler used for cooling, boiler used for heating
Geothermal operation
Ground loop

Examples

Open system

Uses water from a well or surface water (river, lake). The water is pumped back to a second well or surface water.

**Conditions:**
- At 20 m depth water has a constant temperature of 10°C through the year
- Surface water cools down to 5°C during winter

- Can be the most economical type of geothermal system
- Constant ground water temperature has positive impact on heat pump efficiency
- Risk to damage system components because of water quality → a secondary loop might be required to protect the heat exchanger
- Water should be tested for acidity, mineral content, organic content and corrosiveness:
- In many areas open systems are prohibited due to environmental concerns

Closed system

Uses water pipes that are buried in the ground and exchange heat with the ground.

**Vertical system conditions**
- Typical depth: 30-140 m. Below 15 m, the temperature of the ground is constant around 10°C

- Less surface space required
- Very constant ground temperature
- Expensive due to drilling cost

For smaller applications also horizontal loops can be used

**Horizontal loop system**
- Typical trench depth: 1 – 2 m. The ground temperature varies, but always above 5°C (Exception: in cold areas)
- Slinky loop: the plastic geothermal loop pipe is coiled in overlapped circles and flattened (Installed where there is not enough space for closed horizontal)

- Installation is easier and less expensive than vertical closed loops.
- Mainly for small applications as the property land should be large enough
- You cannot plant trees or build constructions over the land containing the loop.
- Glycol is needed to prevent freezing of the water.
VRV IV water cooled series

Ideal for high rise buildings, using water as heat source

- Unified range for standard and geothermal series simplifies stock.
- Geothermal series reduce 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.
- Covers all thermal needs of a building via a single point of contact: accurate temperature control, ventilation, air handling units and Biddle air cutains.
- Compact & lightweight design can be stacked for maximum space saving.
- Incorporates VRV IV standards & technologies: Variable Refrigerant Temperature and full inverter compressors.
- 2-stage heat recovery: first stage between indoor units, second stage between outdoor units thanks to the storage of energy in the water circuit.
- Available in heat pump and heat recovery version.
- Variable Water Flow control option increases flexibility and control.
- Contains all standard VRV features.

Outdoor unit RWEYQ 8T 10T 16T 18T 20T 24T 26T 28T 30T

<table>
<thead>
<tr>
<th>System</th>
<th>Outdoor unit module 1</th>
<th>8T</th>
<th>10T</th>
<th>16T</th>
<th>18T</th>
<th>20T</th>
<th>24T</th>
<th>26T</th>
<th>28T</th>
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<tr>
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<td>RWEYQ26T</td>
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<td>RWEYQ28T</td>
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<td>RWEYQ30T</td>
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<table>
<thead>
<tr>
<th>Capacity range</th>
<th>HP</th>
<th>8</th>
<th>10</th>
<th>16</th>
<th>18</th>
<th>20</th>
<th>24</th>
<th>26</th>
<th>28</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling capacity Nom. kW</td>
<td>2.4 (1) / 2.4 (2)</td>
<td>3.0 (1) / 3.0 (2)</td>
<td>4.4 (1) / 4.4 (2)</td>
<td>5.3 (1) / 5.3 (2)</td>
<td>6.4 (1) / 6.4 (2)</td>
<td>7.6 (1) / 7.6 (2)</td>
<td>8.8 (1) / 8.8 (2)</td>
<td>10.0 (1) / 10.0 (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heating capacity Nom. kW</td>
<td>2.4 (1) / 2.4 (2)</td>
<td>3.0 (1) / 3.0 (2)</td>
<td>4.4 (1) / 4.4 (2)</td>
<td>5.3 (1) / 5.3 (2)</td>
<td>6.4 (1) / 6.4 (2)</td>
<td>7.6 (1) / 7.6 (2)</td>
<td>8.8 (1) / 8.8 (2)</td>
<td>10.0 (1) / 10.0 (2)</td>
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</tbody>
</table>

| Power input - 50Hz | Cooling Nom. kW | 4.4 (1) / 4.4 (2) | 6.4 (1) / 6.4 (2) | 8.8 (1) / 8.8 (2) | 10.0 (1) / 10.0 (2) | 12.5 (1) / 12.5 (2) | 15.7 (1) / 15.7 (2) | 19.5 (1) / 19.5 (2) |
|                   | Heating Nom. kW | 4.4 (1) / 4.4 (2) | 6.4 (1) / 6.4 (2) | 8.8 (1) / 8.8 (2) | 10.0 (1) / 10.0 (2) | 12.5 (1) / 12.5 (2) | 15.7 (1) / 15.7 (2) | 19.5 (1) / 19.5 (2) |

| COP | kW | 5.07 (1) / 5.03 (2) | 4.77 (1) / 4.62 (2) | 5.07 (1) / 5.03 (2) | 4.77 (1) / 4.62 (2) | 5.07 (1) / 5.03 (2) | 4.77 (1) / 4.62 (2) | 5.07 (1) / 5.03 (2) | 4.77 (1) / 4.62 (2) |
| EER kW | 5.94 (3) / 5.81 (4) | 5.53 (3) / 5.38 (4) | 5.94 (3) / 5.81 (4) | 5.53 (3) / 5.38 (4) | 5.94 (3) / 5.81 (4) | 5.53 (3) / 5.38 (4) | 5.94 (3) / 5.81 (4) | 5.53 (3) / 5.38 (4) |

| Maximum number of connectable indoor units | 36 (5) |
| Indoor index connection | Min. | 100 | 125 | 200 | 225 | 250 | 300 | 325 | 350 | 375 |
|                            | Nom. | 200 | 250 | 400 | 450 | 500 | 600 | 650 | 700 | 750 |
|                            | Max. | 260 | 325 | 520 | 585 | 650 | 780 | 845 | 910 | 975 |

| Dimensions Unit Height x Width x Depth mm | 1,000x780x550 |
| Weight Unit kg | 137 |

| Sound power level Cooling Nom. dB(A) | 8 |
| Sound pressure level Cooling Nom. dB(A) | 54 |
| Operation range Inlet water temperature Cooling Min. - Max. °CDB | 10–45 |
| Heating Min. - Max. °CWB | -10 / 0.0–45 |
| Refrigerant Type | R-410A |
| Charge kg | 3.5, 4.2 |
| TCO₂ eq | 7.3, 8.8 |

| GWP | 2,087.5 |

| Piping connections Liquid OD mm | 9.52 | 12.7 | 15.9 | 19.1 |
|                                   | 19.1 (6) | 22.2 (6) | 28.6 (6) | 34.9 (6) |
| Gas OD mm | 19.1 (6) | 22.2 (6) | 28.6 (6) | 34.9 (6) |

| Discharge gas OD mm | 19.1 (7) / 22.2 (8) | 22.2 (7) / 28.6 (8) | 28.6 (7) / 34.9 (8) |
| Total piping length System Actual m | 300 |

| Power supply | Phase/Frequency/Voltage Hz/V | 3N~/50/380-415 |
| Current - 50Hz | Maximum fuse amp (A) | A | 20 | 32 | 50 |

| Refrigerant piping Level difference between the VRV-W and indoor units: 50m if the VRV-W is above 40m if the VRV-W is below | Level difference between indoor units: 15m |

Launch of 12HP unit and extension of the range up to 36HP 2nd half 2016
RWEYQ-T

**Top view**
- Foundation bolt hole 8x Ø17

**Bottom view**

**Right side view**

**Rear view**

**After attaching accessories pipe**

**Manufacturer label**

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<table>
<thead>
<tr>
<th>Item</th>
<th>Part name</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Liquid pipe</td>
<td>See table 1</td>
</tr>
<tr>
<td>2</td>
<td>Suction pipe</td>
<td>See table 1</td>
</tr>
<tr>
<td>3</td>
<td>Gas pipe</td>
<td>See table 1</td>
</tr>
<tr>
<td>4</td>
<td>Water in connection</td>
<td>External pipe thread ISO 228 - G1 1/4 B</td>
</tr>
<tr>
<td>5</td>
<td>Water out connection</td>
<td>External pipe thread ISO 228 - G1 1/4 B</td>
</tr>
<tr>
<td>6</td>
<td>Drain outlet</td>
<td>External pipe thread ISO 228 - G1/2 B</td>
</tr>
<tr>
<td>7</td>
<td>Grounding terminal</td>
<td>M5</td>
</tr>
<tr>
<td>8</td>
<td>Power supply wiring intake</td>
<td>Ø20</td>
</tr>
<tr>
<td>9</td>
<td>Cable inlet</td>
<td>Ø20</td>
</tr>
</tbody>
</table>

**NOTES**

1. The grounding terminal is located in the switch box.

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### Detailed technical drawings

**Table 1**

<table>
<thead>
<tr>
<th>Model</th>
<th>Operation system</th>
<th>Heat pump</th>
<th>Heat recovery</th>
<th>Heat pump</th>
<th>Heat recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>RWEYQ8</td>
<td>Liquid pipe</td>
<td>Ø9.5</td>
<td>Ø9.5</td>
<td>Ø9.5</td>
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<tr>
<td>RWEYQ10</td>
<td>Suction pipe</td>
<td>Ø19.1</td>
<td>Ø15.9</td>
<td>Ø22.2</td>
<td>Ø18.1</td>
</tr>
</tbody>
</table>

**Connection method**
- Liquid pipe: Flare connection
- Suction pipe: Brazed connection
- Gas pipe (high/low pressure): Not applicable in case of heat pump, suction pipe is not used.

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**RWEYQ-T**

**For single unit installation**
- Secure 300mm or more of service space even not using for rear side take-out

**For installation in a row**
- Secure 300mm or more of ventilation space above the marked part of outside unit
- H: free
- W: 179 mm

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**Water piping installation space**
- Secure enough space for removing front plate

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**Service space (rear)***
- Inside unit
- 350 or more

**Service space (front)***
- Inside unit
- 20 or more

**Outside unit**
- 350 or more

**Right side view**

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**Front view**

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**Right side view**

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**Rear view**

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**Service space (rear)***
- Outside unit
- 350 or more

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**Service space (front)***
- Outside unit
- 20 or more

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**Required service space**

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**Ventilation space**

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[Diagram images and text details as per the original document]