Ceiling Concealed Chilled Water Fan Coil Unit

Models: FWW200VC  FWW300VC  FWW400VC  FWW500VC  FWW600VC  FWW700VC  FWW800VC  FWW1000VC  FWW1200VC  FWW1400VC

Air Flow: 340-2380m³/h
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**NOTE:** Installation and maintenance are to be performed only by qualified personnel who are familiar with local codes and regulations, and experienced with this type of equipment.

**Caution:** Sharp edges and coil surfaces are a potential injury hazard. Avoid contact with them.

**Warning:** Moving machinery and electrical power hazard. May cause severe personal injury or death. Disconnect and lock off power before servicing equipment.
Nomenclature

Sales Region: E: Export
Power Supply: A: 220V~/50 Hz
Other Feature Codes
Material of Drain Pan
Filter: X: no filter F: 8mm nylon filter A: 8 mm aluminum filter
Return Air Plenum: C: without return air plenum B: back return air plenum D: bottom return air plenum E: back return air plenum(5mm PE insulation) F: bottom return air plenum(5mm PE insulation)
Pipe Connection: R: facing air flow right hand L: facing air flow left hand
External Static Pressure: 1: 12 Pa 3: 30 Pa 5: 50 Pa
Coil Type: C: 3 rows
Unit Design SN
Rated Air Volume (CFM, 1 CFM = 1.7 m³/h)
DAIKIN Ceiling Concealed Horizontal Fan Coil Unit
Valve Nomenclature

FWW - 2V 4 Y B R A E

- E-Export
- U-Stick "Made In China"
- Power Supply:
  - A-220-240V/1Ph/50Hz
  - K-208-230V/1Ph/60Hz
- Pipe Connection
  - R-for Right hand unit
  - L-for Left hand unit
- Valve Type
  - B-with Ball Valve
  - X-without Ball Valve
- Strainer Type
  - Y-with Y-Strainer
  - X-without Y-Strainer
- Union Size
  - Omitted-R3/4
  - 4-R1
- Valve model
  - 2V:2-Way Valve Kit
  - 3V:3-Way Valve Kit
- FWW-DAIKIN FCU
  (Only 2-pipe system is applicable)
Features

Compact
- Light-weighted, good-looking appearance, and compact and solid structure.
- 235 mm height, allowing installation on the ceiling with a limited space.

Low-noise
- Low-noise motor for driving the low speed fan with a wide impeller; strictly tested before delivery.
- Precise distance between the impeller inlet/outlet and the heat exchanger for more reasonable air flow distribution.
- Highly efficient sound-absorbing and heat-preserving materials inside to minimize noises produced by the unit.

Reliable
- Single-phase capacitor motor with the protection grade IP20 and insulation grade B to ensure operation safety.
- Permanently lubricated and sealed ball bearing with high precision, which is provided by internationally famous brands and receives processing including hardening and tempering as well as chroming.
- Motor power outlet wires protected by metal hoses to ensure its durability.
- Working pressure up to 1.6 MPa and test pressure up to 2.0 MPa for the heat exchanger to endure high pressures and prevent leakage.

High Efficiency
- Heat exchanger with the high-quality mechanically expanded copper pipe and hydrophilic aluminum fins to ensure high efficiency.
- Intensified air supply using a large air flow fan with a wide impeller to maximize the heat transfer performance.
- Precise matching of the fan and motor to guarantee the maximum cooling capacity but a low power input.

Flexible
- Multiple external static pressures designed based on the unit’s cooling capacity, meeting the air supply requirements at different distances.
- Optional bottom return air plenum or back return air plenum with support for onsite changes, featuring time saving.
- Variable accessories for more options.

Anti-leakage
- Delicate condensate-proof drain pan made of the cold-rolled steel through one-time impact molding, with coating on both sides and high-quality heat-preserving materials on the exterior.
- Unique independent mounting bracket without soldering seams or joints, requiring no bolts for fixing to prevent damages to the drain pan heat-preserving layer or cold bridges.
- Tilt structure for rapid condensate water drainage.
## Specifications

### General Data

<table>
<thead>
<tr>
<th>FWW-VC</th>
<th>FWW200VC</th>
<th>FWW300VC</th>
<th>FWW400VC</th>
<th>FWW500VC</th>
<th>FWW600VC</th>
<th>FWW700VC</th>
<th>FWW800VC</th>
<th>FWW1000VC</th>
<th>FWW1200VC</th>
<th>FWW1400VC</th>
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<tbody>
<tr>
<td><strong>Air Flow</strong></td>
<td>m³/h</td>
<td>340</td>
<td>510</td>
<td>680</td>
<td>850</td>
<td>1020</td>
<td>1170</td>
<td>1360</td>
<td>1700</td>
<td>2040</td>
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<tr>
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<td>400</td>
<td>500</td>
<td>600</td>
<td>688</td>
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<td>418</td>
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<td>0.88</td>
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### External Static Pressure

| Pa/in.wg | 12.3, 10.0, 0.5, 0.12, 0.2 |

### Total Cooling Capacity

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<tr>
<th>W</th>
<th>2220</th>
<th>3300</th>
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### Total Heating Capacity

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<th>6800</th>
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<th>9600</th>
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### Head Loss (Cooling)

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### Unit Weight (Without plenum)

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### Unit Gross Weight (Without plenum)

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<th>12.4</th>
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<tr>
<td>With Back Return Air Plenum</td>
<td>mm</td>
<td>625×516×235</td>
<td>815×516×235</td>
<td>865×516×235</td>
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<tr>
<td>With Bottom Return Air Plenum</td>
<td>mm</td>
<td>625×497×235</td>
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### Unit Weight (With plenum)

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<th>13.2</th>
<th>16.0</th>
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<tbody>
<tr>
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<td>36.8</td>
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### Unit Gross Weight (With plenum)

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### Condensate Drain Size

| R3/4 |
## Components Data

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<tr>
<th>FWW-VC</th>
<th>FWW200VC</th>
<th>FWW300VC</th>
<th>FWW400VC</th>
<th>FWW500VC</th>
<th>FWW600VC</th>
<th>FWW700VC</th>
<th>FWW800VC</th>
<th>FWW1000VC</th>
<th>FWW1200VC</th>
<th>FWW1400VC</th>
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<tbody>
<tr>
<td>TYPE</td>
<td>GALVANIZED STEEL DOUBLE STAGE IMPELLER CENTRIFUGAL (BLADE: FORWARD)</td>
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</tbody>
</table>

## Motor

| TYPE | SINGLE PHASE BALL BEARING CAPACITOR RUNNING |
| QUANTITY | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 |
| IP/INSULATION GRADE | IP20/B |

| TUBE | COPPER |
| DIAMETER | mm | 7 |
| | in | 0.28 |
| THICKNESS | mm | 0.25 |
| | in | 0.01 |

| MATERIAL | HYDROPHILIC ALUMINUM |
| THICKNESS | mm | 0.11 |
| | in | 0.0043 |

| FIN | |
| FACE AREA | m² | 0.08 | 0.12 | 0.13 | 0.15 | 0.17 | 0.18 | 0.25 | 0.26 | 0.30 | 0.34 |
| | ft² | 0.86 | 1.29 | 1.40 | 1.61 | 1.83 | 1.94 | 2.69 | 2.80 | 3.23 | 3.66 |
| ROW | 3 |

| FIN PER INCH | 17 |
| SIZE | NYLON/ALUMINUM FRAME |
| LENGTH | mm | 438 | 628 | 678 | 758 | 858 | 908 | 1238 | 1288 | 1488 | 1638 |
| | in | 17.24 | 24.72 | 26.89 | 29.83 | 33.77 | 35.74 | 48.73 | 50.70 | 58.57 | 64.47 |
| WIDTH | mm | 196 |
| | in | 7.71 |
| THICKNESS | mm | 8 |
| | in | 0.31 |

**NOTES:**
ALL SPECIFICATIONS ARE SUBJECTED TO CHANGE BY THE MANUFACTURER WITHOUT PRIOR NOTICE.

## Sound Data

<table>
<thead>
<tr>
<th>FWW-VC</th>
<th>FWW200VC</th>
<th>FWW300VC</th>
<th>FWW400VC</th>
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<th>FWW600VC</th>
<th>FWW700VC</th>
<th>FWW800VC</th>
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**NOTES:**
1) ALL SPECIFICATIONS ARE SUBJECTED TO CHANGE BY THE MANUFACTURER WITHOUT PRIOR NOTICE.
2) SOUND PRESSURE LEVEL ARE ACCORDING TO MICROPHONE POSITION OF THE MEASUREMENT POINT IS 1m IN FRONT AND 1m BELOW THE UNIT.


**Air Flow vs ESP Curve**

ESP, 12Pa

ESP, 30Pa

ESP, 50Pa

Air Flow vs ESP Curve

ESP, 12Pa

ESP, 30Pa

ESP, 50Pa

Air Flow vs ESP Curve

ESP, 12Pa

ESP, 30Pa

ESP, 50Pa

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Air Flow vs ESP Curve

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Air Flow vs ESP Curve

ESP, 12Pa

ESP, 30Pa
# Operating Limits

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<td>Operating frequency limits</td>
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Water Flow Rate/Pressure Drop Chart

FWW-VC

WATER PRESSURE DROP CURVE(3 Rows)

WATER PRESSURE DROP kPa

WATER FLOW m³/h

FWW700VC
FWW500VC
FWW300VC
FWW200VC
FWW1000VC
FWW800VC
FWW1200VC
FWW600VC
FWW400VC
FWW900VC
FWW100VC
Outlines and Dimensions

WITHOUT PLENUM

WITH BACK PLENUM

WITH BOTTOM PLENUM

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<th>Model</th>
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# Electrical Data

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**NOTES:**

1) ALL SPECIFICATIONS ARE SUBJECTED TO CHANGE BY THE MANUFACTURER WITHOUT PRIOR NOTICE.
2) ALL ELECTRIC DATA ARE BEING TESTED UNDER HIGH SPEED.
Wiring Diagrams

Molde: FWW 200-1400

FAN SPEED SWITCH

HF  MF  LF
H  M  L
L  N

(220V~ /50Hz)

HF: FAN SPEED HIGH
MF: FAN SPEED MEDIUM
LF: FAN SPEED LOW

— — — — — FIELD WIRING

NOTE:

Only unit 800~1200 have fan motor2
Installation

Receiving
All units leaving the DAIKIN plant have been inspected to ensure the shipment of high quality products and reasonable means are utilized to properly pack the fan coil units to protect them in transit. Carefully inspect all shipments immediately upon delivery. When damage is visible, note this fact on the carrier’s freight bill and request that the carrier sends a representative to inspect the damage. This may be done by telephone or in person, but should always be confirmed in writing. The shipment should be unpacked in the presence of the agent so that the damage or loss can be determined. The carrier’s agent will make an inspection report and a copy will be given to the consignee for forwarding to the carrier with a formal claim.

Location
Before installation, please check the following:
There must be enough space for unit installation and maintenance. Please refer to the unit’s drawings and dimensions and fig.1 for the minimum distance between the unit and obstacle. Please ensure enough space for piping connection and electrical wiring. Please make sure that the hanging rods can support weight of the unit.

Installation
The unit is designed for concealed ceiling installation. There are holes on the top of the unit for hanging. Please refer to Fig.1.Fig.2 and Fig.3. Make sure that the top of the unit is level.

Insulation
1) Use proper insulation material only
2) Chilled water pipes and all parts on the pipes should be insulated
3) It is also necessary to insulated air ducted
4) Adhesive for insulation should work under range 0˚F(-18˚C) to 200˚F(93.3˚C).

Fig.1

![Diagram of installation location with dimensions A≥200mm, B≥400mm, C≥265mm]
Fig.2 WITH AND WITHOUT PLENUM FORM:

Discharge air

Return air

Terminal block
Ceiling access
Panel with air return

Fig.3 DETAIL A:

NUT
FANCOIL
EXPANSION SCREW
RECOMMENDED THE DIAMETER IS 6-8MM HANGING ROD
FLAT WASHER

Air Duct Connection
Circulatory air pressure drop should be within External Static Pressure
Galvanized steel air ducts are suitable
Make sure there is no leak of air.
Air duct should be fireproof, refer to concerned country national and local regulations.

Pipe Connection
Using suitable fittings as water pipe connections. Refer to the specification
The water inlet is on the bottom while outlet on top.
The connection must be concealed with rubberized fabric to avoid leakage.
Drainpipe can be PVC or steel.
The suggested slope of the drainpipe is at least 1:50.

Wiring
1) Wiring connection must be done according to the wiring diagram on the unit.
2) The unit must be GROUNDED well.
3) An appropriate strain relief device must be used to attach the power wires to the terminal box.
4) A 7/8" knockout hole is designed on the terminal box for field installation of the strain relief device.
5) Field wiring must be complied with the national security regulations.
Valve Kit

The valve kit is applied for 2-pipe system. The kit consists of (refer structure figure 0):

- **2/3 way valve body** is made of brass, maximum working pressure 1.6MPa.
- **Electric actuator** has the following specifications:
  - Power supply: 220V±10%/50/60Hz (±2Hz)
  - Activation: ON/OFF
- **Hydraulic kit** for the installation of the valve on the heat exchanger, complete with 2 ball valves for adjusting the water flow and for closing the water circuit when perform maintenance to the unit.
- **Y-strainer** protects unit from impurity, increases the service life and insulating valves.

![Figure 0](image1.png)

All parts of 2-way valve kit are indicated in the figure 1. (For right pipe connection unit.)

![Figure 1](image2.png)

A Ball valve  
B Brass connector  
C Y-strainer  
D Water inlet pipe  
E Water outlet pipe  
F 2-way valve

All parts of 3-way kit are indicated in the figure 2. (For right pipe connection unit.)

![Figure 2](image3.png)

A Ball valve  
B Brass connector  
C Y-strainer  
D Connector pipe  
E Water inlet pipe  
F 3-way valve  
G Water outlet pipe
Installation

1. Install the 2-way valve kit as indicated in the pictures of figure 3. (For right pipe connection unit.) As shown as detail A, firstly take apart connector, then install ① to unit with necessary sealing material. Fix ② between ① and ③. At last tighten ③, make sure all of connectors are sealed.

2. Install the 3-way valve kit as indicated in the pictures of figure 4. (For right pipe connection unit.) Detail is as same as 2-way valve unit.

⚠️ The valve kit has been pre-assembled for easy installation.
- Where needed the connections are pre-coated with sealing material.
- The connections are not tightened for easy adjustment.
- After determining the final position of the valve kit, tighten all connections to obtain water tightness.

Figure 3  2-Way Valve
Insulation

1. The insulation design and materials should be complying with local and national codes and regulations.
2. Chilled water pipes and all parts on the pipes should be insulated.

The flow resistance of the connecting valve/hydraulic kit assembly is obtained from the following formula:

\[ \Delta P_w = \left( \frac{Q_w}{100K_v} \right)^2 \]

\( P_w \) is the flow resistance (Pa)
\( Q_w \) is the water flow rate (m\(^3\)/h)
\( K_v \) is the flow rate identified in the table

### Valve Model

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<th>Valve Model</th>
<th>DN</th>
<th>Connection Type</th>
<th>Valve Type</th>
<th>KV</th>
<th>Shut-off Pressure Difference (MPa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC-FCV3335G</td>
<td>20</td>
<td>Rc3/4&quot;</td>
<td>3-way Valve</td>
<td>3.4</td>
<td>0.18</td>
</tr>
<tr>
<td>MC-FCV2334G</td>
<td>20</td>
<td>Rc3/4&quot;</td>
<td>2-way Valve</td>
<td>3.0</td>
<td>0.18</td>
</tr>
</tbody>
</table>

Pipe Connection

1. Using suitable fittings as water pipe connections with reference to the outline and dimensions.
2. The water inlet is on the bottom while outlet on top.
3. The connection must be concealed with rubberized fabric to avoid leakage.
4. Tightening torque should not be too high when connecting water pipes, in order to avoid brass deformation or water-leakage by torsion split.

Wiring

1. Refer to the wiring diagram of the appropriate controller.
2. For connection with the DAIKIN controller, position the water temperature probe into the appropriate position. Refer to the dedicated controller installation and operation manual.
Daikin Industries, Ltd.’s products are manufactured for export to numerous countries throughout the world. Daikin Industries, Ltd. does not have control over which products are exported to and used in a particular country. Prior to purchase, please therefore confirm with your local authorized importer, distributor and/or retailer whether this product conforms to the applicable standards, and is suitable for use, in the region where the product will be used. This statement does not purport to exclude, restrict or modify the application of any local legislation.

- Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorized parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Read the User’s Manual carefully before using this product. The User’s Manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any enquiries, please contact your local importer, distributor and/or retailer.

Warning

The air conditioners manufactured by Daikin Industries have received ISO 9001 series certification for quality assurance. Certificate Number. 9601019

The airconditioning factories of Daikin Industries have received environmental management system standard ISO 14001 certification. Certificate Number. EMS80362

Cautions on product corrosion

1. The units should not be installed in areas where corrosive gases, such as acid gas or alkaline gas, are produced.
2. If the unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the unit close to the sea shore, contact your local distributor.

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