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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Specifications, designs and other content appearing in this brochure are current as of Feb. 2015 but subject to change without notice.
As an air-conditioning provider, Daikin water-cooled single screw chiller had worldwide reputation. More and more customer pays attention to the high efficiency and energy saving products. Daikin ZUWV variable frequency drive water cooled chiller was innovated for maximum resource utilization and reasonable energy consumption solution. ZUWV chiller is mainly applied in larger load fluctuation, long-time part load operation condition and high IPLV applications.

Introduction / Nomenclature

Technology Features

Control Features

Technical Data / Dimensions

Starting range / Operating range / Application Standard

Water Quality Management
Single screw Compressor

- ZUWV adopt single screw compressor unique design, which has one main screw meshing with twin star rotors to produce volumetric Compression cycle. Due to the main rotor is well balanced in both radial and axial direction, the compressor bearing has extremely high reliability and its design lifespan can be as long as 100,000 hours and resulting in sound pressure level lower than twin screw compressor.
- The single compressor design can disperse and minimize discharge pulse, while make discharge more balance and steady. The vibration peak is lower to 0.07 in/s, which is much lower than 0.14 in/s AHRI requirements and save the vibration-absorption device investment.
- Motor directly drive the rotor and no gear drive. Less drive parts reduce the fault risk.
- The internal oil supply channel could reserve same oil and supply to the bearing ensures the compressor stable running.

Precise configuration

- High power factor and integrated part load value, IPLV is up to 10.
- Lower starting current, no impact to power grid of user side.
- 20%-100% stepless regulation control to meet the different seasons cooling load requirements.
- The unit configured non-return valve to prevent the discharge refrigerant returns back to compressor and avoid the compressor reversal running.
- Unique designed twin safety valve as stand by. No need to stop the unit when annual maintenance and ensures the vessel safety.
- The unit configure the breaker, disconnect or, stop switch to ensure the safety of unit and operator.
- The controller could monitor the running parameter and displayed the running data through touch screen in order to ensure the high efficient operation.

Unit mounted Variable Frequency DriveStarter

- Air cooled VFD without complex piping connection, low maintenance charge and more reliable.
- Total standard harmonic distortion is 35%.
- Auto repair displacement power factor in performance process can reach to 0.98.

Precise configuration

- ZUWV chiller utilizes Micro Tech III control platform and use high precision electronic expansion valve to control chilled water leaving temperature±0.2°C . Also utilizes 7inch touch screen as main human interface for easy setting and download data.
### TECHNICAL DATA

<table>
<thead>
<tr>
<th>Model</th>
<th>Cooling capacity (kW)</th>
<th>COP</th>
<th>PLV</th>
<th>Condenser code</th>
<th>Evaporator code</th>
<th>Condenser water pipe location dimension (mm)</th>
<th>Evaporator water pipe location dimension (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZUWV 4J2JF FFE3 FCL2 SB</td>
<td>126.0</td>
<td>5.69</td>
<td>10.34</td>
<td>45.7</td>
<td>50.2</td>
<td>57.7</td>
<td>42.1</td>
</tr>
<tr>
<td>ZUWV 4J2JF FFE3 FFL2 SB</td>
<td>126.0</td>
<td>5.69</td>
<td>10.34</td>
<td>45.7</td>
<td>50.2</td>
<td>57.7</td>
<td>42.1</td>
</tr>
<tr>
<td>ZUWV 4J2JF KEE3 KAL2 SB</td>
<td>126.0</td>
<td>5.69</td>
<td>10.34</td>
<td>45.7</td>
<td>50.2</td>
<td>57.7</td>
<td>42.1</td>
</tr>
<tr>
<td>ZUWV 4J2JF KEE3 KCL2 SB</td>
<td>126.0</td>
<td>5.69</td>
<td>10.34</td>
<td>45.7</td>
<td>50.2</td>
<td>57.7</td>
<td>42.1</td>
</tr>
<tr>
<td>ZUWV 5K8JF KEE3 KAL2 SB</td>
<td>126.0</td>
<td>5.69</td>
<td>10.34</td>
<td>45.7</td>
<td>50.2</td>
<td>57.7</td>
<td>42.1</td>
</tr>
<tr>
<td>ZUWV 5K8JF KEE3 KCL2 SB</td>
<td>126.0</td>
<td>5.69</td>
<td>10.34</td>
<td>45.7</td>
<td>50.2</td>
<td>57.7</td>
<td>42.1</td>
</tr>
<tr>
<td>ZUWV 6N8MF LGE3 LCL2 SB</td>
<td>126.0</td>
<td>5.69</td>
<td>10.34</td>
<td>45.7</td>
<td>50.2</td>
<td>57.7</td>
<td>42.1</td>
</tr>
</tbody>
</table>

Notes:
1. Above chiller cooling capacity is based on AHRI condition:
   - Chilled water outlet temperature 6.7°C, Chilled water inlet temperature 12.2°C;
   - Cooling water inlet temperature 29.4°C, Cooling water outlet temperature 34.6°C;
   - Evaporator-side water fouling factor: 0.018 m² °C/kW, condenser-side water fouling factor: 0.044 °C/kW
2. Power supply: 380V/50Hz/3
3. Parameters of special units, please contact the Local sales organization.
4. The starting current is smaller than full load current; the power distribution should according to the full load current

### Options

<table>
<thead>
<tr>
<th>Items</th>
<th>Standard</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vessel Code</td>
<td>GB Standard</td>
<td>ASME</td>
</tr>
<tr>
<td>Water connection</td>
<td>Victaulic groove ready</td>
<td>Flange</td>
</tr>
<tr>
<td>Marine water box</td>
<td>None</td>
<td>option</td>
</tr>
<tr>
<td>Insulation</td>
<td>20 mm insulation on evaporator and cold surface</td>
<td>40 mm insulation on evaporator</td>
</tr>
<tr>
<td>Flow switch</td>
<td>Flow switch</td>
<td>NA</td>
</tr>
<tr>
<td>Shock absorption Device</td>
<td>Trum Rubber Pads</td>
<td>Spring isolator</td>
</tr>
<tr>
<td>Extended warranty</td>
<td>NA</td>
<td>1-4 Year</td>
</tr>
<tr>
<td>Factory Test</td>
<td>100% factory performance test report not include</td>
<td>1 to 4 point witness test</td>
</tr>
</tbody>
</table>

### Notes:
- Condenser water outlet
- Condenser water inlet
- Evaporator water inlet
- Evaporator water outlet
- Lifting lug
- Mounting hole
- Starter power cable slot

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**DIMENSIONS**

### Notes:
- Condenser water outlet; . Condenser water inlet; c. Evaporator water inlet
d. Evaporator water outlet; e. lifting lug; f. Mounting hole; g. Starter power cable slot
**Application Standards**

The standard running condition:
- Supply Voltage: ±10%
- Phase Unbalance Rate: ±5%
- Frequency: 50±2Hz
- Operating Temperature: 3~40°C
- Relative Humidity: ≤90%
- Atmospheric Corrosive Gas Contents:
  - Sulfur dioxide <10 mg/m³
  - Hydrogen fluoride ≤5 mg/m³
  - Hydrogen sulfide ≤5 mg/m³
  - Nitrogen oxide ≤5 mg/m³
  - Hydrogen chloride ≤5 mg/m³
  - Silica ≤5 mg/m³

**Water Quality Management**

During the unit running, the water quality of the cooling and chilled water will directly affect the machine’s performance and lifetime, so it is necessary to survey the water quality beforehand, and conduct water quality control as the unit runs.

The following table contains some parameters of the water quality of open system:

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Reference Value</th>
<th>Corrosion</th>
<th>Scaling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Items</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PH (25°C)</td>
<td>-</td>
<td>&lt;6.5~8.0</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Specific (25°C)</td>
<td>-</td>
<td>&lt;900</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Chloride</td>
<td>Mg/Cl⁻</td>
<td>&lt;200</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Calcium Sulfate</td>
<td>mgSO₄/ L</td>
<td>&lt;200</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Acid Consumption (PH=4.8)</td>
<td>mgCaCO₃/L</td>
<td>&lt;400</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Full Hardness</td>
<td>mgCaCO₃/L</td>
<td>&lt;200</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Iron Fe</td>
<td>mg/Fe/L</td>
<td>&lt;1.0</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Reference Items</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sulphur S-</td>
<td>mgS²⁻/L</td>
<td>Not Detected</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Ammonium NH⁺</td>
<td>mg(NH₄)¹/L</td>
<td>&lt;1.0</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Silicon Oxide</td>
<td>mgSiO₂</td>
<td>&lt;50</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

Notes:
1. For water quality index, refer to Appendix D Cooling Water Quality of Water Chiller (Heat Pump) with Vapor Compression Cycle GB/T1943.1.
2. The “O” in the table indicates the relevant factors with corrosion or scaling.
3. If the water quality does not reach the requirements in the above table, refer to Code for Design of Industrial Recirculating Cooling Water Treatment GBS055-2007 for treatment.