This page contains information on the COOLANT VANE PUMP (WVP) series, specifically focusing on the WVP-VD1-G30-SW-B model. The pump is described as being suitable for use with water-soluble hydraulic fluid, and the pump characteristics are summarized in the following text.

### COOLANT VANE PUMP (WVP)

#### Description of the model designation

- **WVP-VD1-G30-SW-B**
  - Model No.:
  - Applicable kind of hydraulic fluid:
    - SW: Water soluble hydraulic fluid
    - SO: Water insoluble hydraulic fluid
  - Standard discharge rate:
    - At rated speed under no load
  - Mounting method:
    - G: Gasket type
    - F: Flange type
    - L: Foot type
  - Rated pressure
  - Series code:
    - D, F, G
  - Variable displacement type
  - Vane pump for water soluble, water insoluble hydraulic fluid

#### Features

1. Long life and high performance
2. Since the pump is a variable-displacement type, no relief valve is necessary.
3. Available in a series so that the discharge rate most suitable to the application can be selected.
4. Can be mounted in the same dimensions as conventional hydraulic pumps.

#### Cautions on use

- Please read the Operating Manual carefully to ensure correct usage.
- Pump selection: The pump characteristics differ depending on the operating conditions such as the fluid used, the dead head setting pressure and the circuit. Therefore, it is necessary to select a pump that has sufficient margin.

#### Handling

1. **Installation**
   - Basically, pumps of this series are installed in the same manner as the HVP-V*1 series variable-displacement type pumps. The pump inlet port must be at the same level or lower than the fluid surface level and the suction filter and the strainer position must not be more than 200 mm lower than the bottom or reservoir.
   - For a drain pipe, use a pipe larger than the pump drain port diameter and the drain pipe end must be into the fluid.
2. **Removal of chips**
   - When designing a reservoir, ensure that it will be possible to remove chips from the fluid.
   - Chips of 50µm or larger should be removed before the fluid is taken into the suction side of the pump.
3. **Chip Management Standard**
   - When water-soluble coolant is used, check the coolant to avoid degradation of rust prevention performance.
   - Degraded rust prevention performance can cause rusting in the pump, which leads to low pump performance and short pump life. Development of bacteria will cause clogging of the suction filter and the strainer as well as corrosion of the pump component parts.

#### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Discharge rate under no load (L/min)</th>
<th>Max. operating pressure (MPa)</th>
<th>Pressure adjustment range (MPa)</th>
<th>Revolving speed (min⁻¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,000 min⁻¹</td>
<td>1,200 min⁻¹</td>
<td>SO</td>
<td>SW</td>
</tr>
<tr>
<td>WVP-VD1-G30--B</td>
<td>25</td>
<td>30</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>WVP-VD1-F30--B</td>
<td>47</td>
<td>56</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>WVP-VF1-L56--B</td>
<td>75</td>
<td>90</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>WVP-VF1-L90--B</td>
<td>47</td>
<td>56</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>WVP-VF1-L120--B</td>
<td>100</td>
<td>120</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>WVP-VG1-G160--B</td>
<td>133</td>
<td>160</td>
<td>7</td>
<td>3</td>
</tr>
</tbody>
</table>

(Note 1) The pressure adjustment range means the same at the dead head. Direction of rotation is to right viewed from the shaft end.

(Note 2) Symbol “*” in the model designation indicates SO for use of water-insoluble cutting fluid or SW for use of water-soluble cutting fluid.
### Outside dimensions

#### WVP-VD1-G30-B

Discharge rate adjustment screw (CW: Increases discharge rate.)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Discharge rate under no load (L/min)</th>
<th>Max. operating pressure (MPa)</th>
<th>Pressure adjustment range (MPa)</th>
<th>Revolving speed (min⁻¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L120</td>
<td>271.5 Max.</td>
<td>173.5</td>
<td>3 to 4</td>
<td>1,000 min⁻¹</td>
</tr>
<tr>
<td>L90</td>
<td>230</td>
<td>90</td>
<td>3 to 4</td>
<td>1,200 min⁻¹</td>
</tr>
<tr>
<td>G160</td>
<td>132</td>
<td>500</td>
<td>3 to 4</td>
<td>1,000 min⁻¹</td>
</tr>
</tbody>
</table>

#### WVP-VF1-L-B

Pressure adjustment screw (CW: Increases pressure.)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Discharge rate under no load (L/min)</th>
<th>Max. operating pressure (MPa)</th>
<th>Pressure adjustment range (MPa)</th>
<th>Revolving speed (min⁻¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L120</td>
<td>271</td>
<td>173.5</td>
<td>3 to 4</td>
<td>1,000 min⁻¹</td>
</tr>
<tr>
<td>L90</td>
<td>230</td>
<td>90</td>
<td>3 to 4</td>
<td>1,200 min⁻¹</td>
</tr>
<tr>
<td>G160</td>
<td>132</td>
<td>500</td>
<td>3 to 4</td>
<td>1,000 min⁻¹</td>
</tr>
</tbody>
</table>

#### WVP-VG1-G160-B

Discharge rate adjustment screw (CW: Decreases discharge rate.)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Discharge rate under no load (L/min)</th>
<th>Max. operating pressure (MPa)</th>
<th>Pressure adjustment range (MPa)</th>
<th>Revolving speed (min⁻¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L120</td>
<td>456.5 Max.</td>
<td>318.5 Max.</td>
<td>3 to 4</td>
<td>1,000 min⁻¹</td>
</tr>
<tr>
<td>L90</td>
<td>238</td>
<td>200</td>
<td>3 to 4</td>
<td>1,200 min⁻¹</td>
</tr>
<tr>
<td>G160</td>
<td>318</td>
<td>189</td>
<td>3 to 4</td>
<td>1,000 min⁻¹</td>
</tr>
</tbody>
</table>

**Coolant Vane Pump**

**Series code**
- D, F, G

**Rated pressure**
- F: Flange type
- L: Foot type

**Mounting method**
- SO: Water insoluble hydraulic fluid
- SW: Water soluble hydraulic fluid

**Applicable kind of hydraulic fluid**
- Water insoluble hydraulic fluid
- Water soluble hydraulic fluid

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**4. Maintenance**

- As the fluid used, the dead head setting pressure and the circuit. Therefore, it is necessary to carefully select.
- When water-soluble coolant is used, check the coolant to avoid degradation of rust-prevention performance and bacterial decay.

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**Installation**

- Install a vacuum gauge at the pump inlet port to prevent cavitation and prolong pump life.
- For a drain pipe, use a pipe larger than the pump drain port diameter and the drain pipe depth 0.5 (rear).
- The kind of coolant and recommended brands of coolant that can be used with WVP-V*.

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**Coolant Vane Pump**

**Coolant**

- Water insoluble hydraulic fluid
- Water soluble hydraulic fluid

**Recommended Kind of Fluid and Brand**

<table>
<thead>
<tr>
<th>Kind</th>
<th>Pressure Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW</td>
<td>25 or less</td>
</tr>
<tr>
<td>SO</td>
<td>7 or less</td>
</tr>
</tbody>
</table>

**Dilution Ratio**

<table>
<thead>
<tr>
<th>Fluid Kind</th>
<th>Dilution Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW</td>
<td>150 mesh or better</td>
</tr>
<tr>
<td>SO</td>
<td>7 or less</td>
</tr>
</tbody>
</table>

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**Temperature**

- 19°C or less

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**Contamination**

<table>
<thead>
<tr>
<th>Component</th>
<th>Particle dia.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workpiece</td>
<td>4 or less</td>
</tr>
</tbody>
</table>

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**Recommended Fluid and Brand**

- JIS B 1575
- Grease nipple M6F type

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**Outside dimensions**

**WVP-VD1-G30-B**

- Mass: 27 kg

**WVP-VF1-L-B**

- Mass: 48 kg

**WVP-VG1-G160-B**

- Mass: 86 kg
For water insoluble hydraulic fluid (Conditions: Temp. 30°C, viscosity 10.7 m²/s)

For water-soluble cutting fluid (Conditions: Temp. 30°C, viscosity 0.9 m²/s), cutting fluid Class A1, No. 2, fiftyfold dilution