This swash plate type piston pump features low noise, high efficiency and high response. It provides specifications that assure ease of use, such as discharge rate, pressure adjustment range and pipe connection directions, and ensures excellent durability.

**Features**
1. Low noise
   14 MPa, at cut-off: 60 dB (A), before cut-off: 62 dB (A) (at 1 m from 1,200 min⁻¹ pump)
2. High efficiency (energy saving)
   Volumetric efficiency: 94%, whole efficiency: 82% (at 13.5 MPa, 1,800 min⁻¹)
3. High response
   Response time from 14 MPa cut-off to 13.5 MPa: 0.09 sec
   Response time from 13.5 MPa to 14 MPa cut-off: 0.03 sec

**Cautions on use**
- Please read the Operating Manual carefully to ensure correct usage.
- Direction of rotation is to right (CW) viewed from the shaft end.
- Connect the drain pipe from where the drain outlet will become the highest.
- Before starting the pump, supply hydraulic fluid through the oil filter port so that the pump is filled with the hydraulic fluid. (0.3 m³/h)
- When mounting a check valve at the pump outlet side, use a valve with a cracking pressure of 0.005 MPa.
- For the value of discharge rate set by the discharge rate adjustment screw, refer to the graph on K-12 page.
- Installation of a line filter of 20µm is recommended in the return line to the reservoir.
- The pump can be used for R&O type and abrasion-resistant type hydraulic fluid applications.
- When using the water-glycol hydraulic fluid, specify –G at the end of model designation. The maximum speed becomes 1,800 min⁻¹. For brand names of water-glycol hydraulic fluid, please consult us.
- Manage the contamination level of the fluid at NAS11 or better.
- Read the "Cautions on Using Pumps and Motors", A-2 and A-3 pages.
- The foot is sold as an optional single parts. Refer to "About foot", A-64 page.

**Description of the model designation**

**HPP-VB2V-F8A3 (EE)-B (-G)**

- Kind of hydraulic fluid
  - No code: Petroleum based fluid
  - G: Water-glycol fluid
- Model No.
- Pipe connecting method
  - No code: Side board type
  - EE: Axial port type
- Pressure adjustment range
  - 3: 1 to 7 MPa
  - 5: 3 to 14 MPa
- Pressure-discharge rate characteristics
  - A: Fixed displacement type
- Displacement
  - 8: 8 cm³/rev
- Mounting method
  - F: Flange type
- Rated pressure
- Series code
- Variable displacement type
- Piston pump

**Specifications**

| Model            | Displacement (cm³/rev) | Pressure adjustment range (MPa) | Rotating speed (min⁻¹) | 20m³/s
|------------------|------------------------|---------------------------------|------------------------|--------
| HPP-VB2V-F8A3 (EE)-B | 8                      | 1 to 7                          | Rated                  | 1,800  |
|                  |                        | 3 to 14                         | Max.                   | 2,500  |
|                  |                        |                                 | Lowest                 | 500    |

**General performance characteristics**

**Pipe flange**

Performance curve for hydraulic fluid viscosity of 20 mm²/s

**Pipe flange**

<table>
<thead>
<tr>
<th>Name</th>
<th>Screw joint pipe flange</th>
<th>Welding pipe flange</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>FHPF-04PT</td>
<td>FHPF-04WE</td>
</tr>
<tr>
<td>Bolt</td>
<td>M8x30</td>
<td>M8x30</td>
</tr>
<tr>
<td>O-ring</td>
<td>1BG25</td>
<td>1BG25</td>
</tr>
</tbody>
</table>

(Note) This flange comes with mounting bolts and O-ring.

Bolts of strength capacity according to JIS B 1176 standard are used.

The applicable standard for O-ring is JIS B 2401 standard.

**FHPF-04PT (½ thread type)**

4-φ9×14 counter bore depth 1

**FHPF-04WE (½ welding type)**

4-φ9
Performance curve for hydraulic fluid viscosity of 20 mm²/s

Symbol “*”: Set the minimum discharge rate at 4 L/min. or more, regardless of rotating speed.

- EE indicates the pipe connecting method of axial port type.

General performance characteristics

**Specifications**

- Displacement
- Pressure-discharge rate characteristics
- Pressure adjustment range
- Pipe connecting method
- Kind of hydraulic fluid

**Piston pump**

- **Variable displacement type**
- **Series code**
  - EE: Axial port type
  - No code: Side board type
- **G**: Water-glycol fluid

**Input L/min**

**Dead head input**

**Drain flow rate L/min**

---

(Note) This flange comes with mounting bolts and O-ring.

(Об) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(Н) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(В) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(Г) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(Д) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(Е) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(Ж) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(З) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(И) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(К) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(Л) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(М) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(Н) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(О) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(П) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(К) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(Л) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(М) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(Н) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(О) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(П) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(К) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(Л) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(М) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

---

(Н) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(О) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.

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(П) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.
VARIABLE-DISPLACEMENT PISTON PUMP (HPP-VC2V)

This swash plate type piston pump features low noise, high efficiency and high response. It provides specifications that assure ease of use, such as discharge rate, pressure adjustment range and pipe connection directions, and ensures excellent durability.

【Features】
1. Low noise
   14 MPa, at cut-off: 53 dB (A), before cut-off: 58 dB (A) (at 1 m from 1,200 min⁻¹ pump)
2. High efficiency (energy saving)
   Volumetric efficiency: 95%, whole efficiency: 90% (at 13.5 MPa, 1,800 min⁻¹)
3. High response
   Response time from 14 MPa cut-off to 13.5 MPa: 0.06 sec
   Response time from 13.5 MPa to 14 MPa cut-off: 0.03 sec

【Cautions on use】Please read the Operating Manual carefully to ensure correct usage.
1. Direction of rotation is to right (CW) viewed from the shaft end.
2. Connect the drain pipe from where the drain outlet will become the highest.
3. Before starting the pump, supply hydraulic fluid through the oil filter port so that the pump is filled with the hydraulic fluid. (5.5L)
4. When mounting a check valve at the pump outlet side, use a valve with a cracking pressure of 0.005 MPa.
5. For the value of discharge rate set by the discharge rate adjustment screw, refer to the graph on K-12 page.
6. Installation of a line filter of 20µm is recommended in the return line to the reservoir.
7. The pump can be used for R&O type and abrasion-resistant type hydraulic fluid applications.
8. When using the water-glycol hydraulic fluid, specify –G at the end of model designation. The maximum speed becomes 1,800 min⁻¹. For brand names of water-glycol hydraulic fluid, please consult us.
9. Manage the contamination level of the fluid at NAS11 or better.
11. The foot is sold as an optional single parts. Refer to “About foot”, A-64 page.

【Description of the model designation】
HPP-VC2V-F14A3(-EE)-B(-G)

- Kind of hydraulic fluid
  - No code: Petroleum based fluid
  - G: Water-glycol fluid
- Model No.
- Pipe connecting method
  - No code: Side board type
  - EE: Axial port type
- Pressure adjustment range
  - 3: 1 to 7 MPa
  - 5: 3 to 14 MPa
- Pressure-discharge rate characteristics
  - A: Fixed displacement type
  - B: Variable displacement type
- Displacement
  - 14: 14.5 cm³/rev
- Rated pressure
  - 22.2
- Mounting method
  - F: Flange type
- Series code
- Variable displacement type
- Piston pump

【Specifications】

<table>
<thead>
<tr>
<th>Model</th>
<th>Displacement (cm³/rev)</th>
<th>Pressure adjustment range (MPa)</th>
<th>Rotating speed (min⁻¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3: 1 to 7 MPa</td>
<td>5: 3 to 14 MPa</td>
</tr>
<tr>
<td>HPP-VC2V-F14A3(-EE)-B</td>
<td>14 to 14.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPP-VC2V-F14A4(-EE)-B</td>
<td>4 to 14.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

-EE indicates the pipe connecting method of axial port type.
Symbol “*”: Set the minimum discharge rate at 5 L/min. or more, regardless of rotating speed.

【General performance characteristics】

Performance curve for hydraulic fluid viscosity of 20 mm²/s

【Pipe flange】

<table>
<thead>
<tr>
<th>Name</th>
<th>Screw joint pipe flange</th>
<th>Welding pipe flange</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>FHP-06PT</td>
<td>FHP-06WE</td>
</tr>
<tr>
<td>Bolt</td>
<td>M10x35</td>
<td>M10x35</td>
</tr>
<tr>
<td>O-ring</td>
<td>1BG30</td>
<td>1BG30</td>
</tr>
</tbody>
</table>

(Note) This flange comes with mounting bolts and O-ring.
Bolts of strength capacity according to JIS B 1176 standard are used. The applicable standard for O-ring is JIS B 2401 standard.

<table>
<thead>
<tr>
<th>FHPP-06PT(1/4 thread type)</th>
<th>FHPP-06WE(1/4 welding type)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-11</td>
<td>4-11</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
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<tr>
<td>8</td>
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<td>27</td>
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<td>22</td>
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<td>46</td>
<td>46</td>
</tr>
<tr>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>R5.5</td>
<td>R5.5</td>
</tr>
</tbody>
</table>

吐出側口 R5.5 内径 φ30, 端面に R5.5 を標準で用意しています。
吐出側口に取り付けられた R5.5 の端面が吐出側口内径 φ30 に対応します。

吐出側口 R5.5 内径 φ30, 端面に R5.5 を標準で用意しています。

吐出側口に取り付けられた R5.5 の端面が吐出側口内径 φ30 に対応します。

吐出側口 R5.5 内径 φ30, 端面に R5.5 を標準で用意しています。

吐出側口に取り付けられた R5.5 の端面が吐出側口内径 φ30 に対応します。

吐出側口 R5.5 内径 φ30, 端面に R5.5 を標準で用意しています。

吐出側口に取り付けられた R5.5 の端面が吐出側口内径 φ30 に対応します。
### General performance characteristics

#### Specifications

- **Model**: F14A5, F14A3
- **Displacement**: 4, 6, 8, 10, 12, 14
- **Input Rotating speed**: 1,200 min⁻¹, 1,500 min⁻¹
- **Outlet pressure**: 4 to 14.5 (3/rev)
- **Discharge rate**: 1800 min⁻¹
- **Drain flow rate**: L/min
- **Rated pressure**: 1000 min⁻¹, 1200 min⁻¹
- **Pressure adjustment range**: 3: 1 to 7 MPa
- **Piston pump**: Variable displacement type
- **Series code**: PVC2-V
- **Kind of hydraulic fluid**: No code: Petroleum based fluid, EE: Axial port type, G: Water-glycol fluid
- **Pipe flange**: FHPP
- **O-ring**: 8-M10, depth 15

#### Features

- High response
- Low noise
- High efficiency
- Easy of use

### Pressure adjustment screw

- **Pressure adjustment screw** (CW: Increases pressure.)
- **Drain port Rc3/8**
- **Discharge rate adjustment screw** (CW: Decreases discharge rate.)

### Mass

- **Mass**: 11.5 kg

### Notes

- Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.
- (Note) This flange comes with mounting bolts and O-ring.
- The applicable standard for O-ring is JIS B 2401 standard.
- Bolts of strength capacity according to JIS B 1176 standard are used.
- Please read the Operating Manual PUMPS AND MOTORS A−21