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: 56 dB (A), before cut-off: 60 dB (A) (at 1 m from 1,200 min⁻¹ pump)
2. **High efficiency (energy saving)**
   - Volumetric efficiency: 95%, whole efficiency: 85% (at 13.5 MPa, 1,800 min⁻¹)
3. **High response**
   - Response time from 14 MPa cut-off to 13.5 MPa: 0.07 sec
   - Response time from 13.5 MPa to 14 MPa cut-off: 0.06 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. (T1)
  - 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-VD2V-F31A3(-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 (A characteristics)
  - Displacement: 31.5 cc/rev
  - Mounting method: F: Flange type
  - Rated pressure
  - Series code
  - Variable displacement type
  - Piston pump

### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Displacement (cc/rev)</th>
<th>Pressure adjustment range (MPa)</th>
<th>Rated</th>
<th>Rotating speed (min⁻¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPP-VD2V-F31A3(-EE)-B</td>
<td>31.5</td>
<td>1 to 7</td>
<td>1,800</td>
<td>2,500</td>
</tr>
<tr>
<td>HPP-VD2V-F31A5(-EE)-B</td>
<td>31.5</td>
<td>3 to 14</td>
<td>1,800</td>
<td>500</td>
</tr>
</tbody>
</table>

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

Symbol "***": Set the minimum discharge rate at 12 L/min. or more, regardless of revolving 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>FHPP-10PT</td>
<td>FHPP-10WE</td>
</tr>
<tr>
<td>Bolt</td>
<td>M10x35</td>
<td>M10x35</td>
</tr>
<tr>
<td>O-ring</td>
<td>1BG40</td>
<td>1BG40</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.
General performance characteristics

Specifications

Description of the model designation

50
14
10
20
30
40
60
1800min⁻¹

0
2
4
6
8
10
12
14

HPP

Piston pump

Variable displacement type

Series code

Rated pressure

Mounting method

F: Flange type

Displacement

31

5: 3 to 14 MPa

Pressure adjustment range

3: 1 to 7 MPa

Kind of hydraulic fluid

EE: Axial port type

No code: Side board type

G: Water-glycol fluid

No code: Petroleum based fluid

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

Dead head input

1200min⁻¹

1000min⁻¹

1,800min⁻¹

(Specify separately by selecting from this table.)

3/rev)

31.5

1.0

2.0

(Amount: Decreases discharge rate.)

Dead head input

Outlet pressure

MPa)

Pipe flange

Model

FHPP

Screw joint pipe flange

Model

FHPP

Outlet port

Inlet port

Drain port

Pressure adjustment screw

(CW: Increases pressure.)

Discharge rate adjustment screw

(CW: Decreases discharge rate.)

Drain pipe

Connect the drain pipe from where the drain outlet will become the highest.

Before starting the pump, supply hydraulic fluid through the oil filler port so that the pump is filled with the hydraulic fluid. (1

When using the water-glycol hydraulic fluid, specify –G at the end of hydraulic fluid applications.

When mounting a check valve at the pump outlet side, use a valve with a cracking pressure of 0.005 MPa.

Screw, refer to the graph on K-12 page.

A-64 page.

The foot is sold as an optional single parts. Refer to "About foot",

pages.

When using the water-glycol hydraulic fluid, specify –G at the end of

The outside dimensions.

HPP-VD2V-F31A*-B (Side port type)

Mass: 22.5kg

HPP-VD2V-F31A*-EE-B (Axial port type)

Mass: 22.5kg

(Nota) Dimension in parentheses indicates the welding flange dimension, dimensions without parentheses indicate Rc thread flange dimension.
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
   7 MPa, at cut-off: 59 dB (A), before cut-off: 64 dB (A) (at 1 m from 1,200 min⁻¹ pump)
2. High efficiency (energy saving)
   Volumetric efficiency: 95%, whole efficiency: 83% (at 6.5 MPa, 1,800 min⁻¹)
3. High response
   Response time from 7 MPa cut-off to 6.5 MPa: 0.09 sec
   Response time from 6.5 MPa to 7 MPa cut-off: 0.07 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. (2.3)g
- 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-VF2V-F63A3(-EE)-A (~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: 1.4 to 7 MPa |
| Pressure-discharge rate characteristics | A: Fixed displacement type |
| Displacement | 63: 63 cm³/rev |
| Mounting method | F: Flange type |
| Rated pressure | |
| 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>Rated</td>
<td>Max.</td>
</tr>
<tr>
<td>HPP-VF2V-F63A3(-EE)-A</td>
<td>~ to 63</td>
<td>1.4 to 7</td>
<td>1,800</td>
</tr>
</tbody>
</table>

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

Symbol *: Set the minimum discharge rate at 23 L/min. or more, regardless of revolving speed.

### General performance characteristics

Performance curve for hydraulic fluid viscosity of 20 mm²/s

- **Discharge rate setting with the discharge rate adjustment screw**

- **Pipe flange**
  (Specify separately by selecting from this table.)

<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>FHPPP-12PT</td>
<td>FHPPP-12WE</td>
</tr>
<tr>
<td>Bolt</td>
<td>M12 x 40</td>
<td>M12 x 40</td>
</tr>
<tr>
<td>O-ring</td>
<td>1AG50</td>
<td>1AG45</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.
Performance curve for hydraulic fluid viscosity of 20 mm²/s

Symbol *: Set the minimum discharge rate at 23 L/min or more, regardless of revolving speed.

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

General performance characteristics

1. Low noise
2. High efficiency
3. High response

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.

It is recommended to use high-quality hydraulic fluid in order to maintain the durability of the pump. If water-glycol hydraulic fluid is used, manage the contamination level of the fluid at NAS11 or better.

Before starting the pump, supply hydraulic fluid through the oil filler port so that the pump is filled with the hydraulic fluid. (2.3

Manage the contamination level of the fluid at NAS11 or better.

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

Outside dimensions

### HPP-VF2V-F63A3-A (Side port type)

- Mass: 53kg

### HPP-VF2V-F63A3-EE-A (Axial port type)

- Mass: 53kg

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