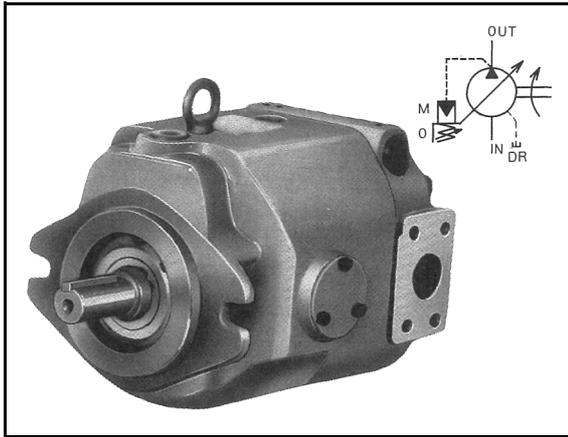


# VARIABLE-DISPLACEMENT PISTON PUMP (HPP-VD2V SERIES)



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  
In operations at 14 MPa, the noise measured at a point 1 meter from the pump running at  $1,200 \text{ min}^{-1}$  is 56 dB (A) at cut-off and 60 dB (A) before cut-off.
2. High efficiency (energy saving)  
Volumetric efficiency: 95%, whole efficiency: 85 %  
(at 13.5 MPa and  $1,800 \text{ min}^{-1}$ )
3. High response

- The standard direction of rotation is clockwise, viewed from the shaft end.
- Run the drain pipe such that the drain port is located at the highest position.
- The permissible drain back pressure is 0.03 MPa max.
- The suction pressure must be within  $-0.02 \text{ MPa}$ .
- Before starting the pump, supply hydraulic fluid through the oil filler port so that the pump is filled with the hydraulic fluid (1 L).
- When mounting a check valve at the pump outlet side, use a valve with a cracking pressure of 0.005 MPa.
- Always install a 150-mesh filter and strainer in the suction line. Installation of a line filter of 10 to  $20 \mu\text{m}$  is recommended in the return line to the reservoir.
- How the discharge rate is adjusted using the discharge rate adjusting screw is shown in the graphs on page 275.
- The pump can be used for R&O type and abrasion-resistant type hydraulic fluid applications.
- The fluid to be used is hydraulic fluid with a viscosity equivalent to ISO VG32 or VG46. Use the fluid within the appropriate viscosity range of 150 to  $20 \text{ mm}^2/\text{sec}$ . When water-glycol fluid is used, specify "G" at the end of model designation. In this case, the maximum speed is  $1,800 \text{ min}^{-1}$ . Please consult us about the applicable brand of water-glycol fluid.
- Maintain the contamination level of the fluid at NAS class 11 or better.
- The permissible operating ambient temperature range is from 0 to  $60^\circ\text{C}$ .

## SPECIFICATIONS

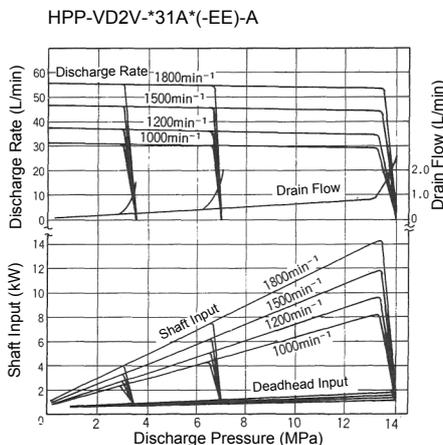
Model		Rated Pressure (MPa)	Displacement ( $\text{cm}^3/\text{rev}$ )	Pressure Adjustment Range (MPa)	Speed ( $\text{min}^{-1}$ )		
Foot-mount Type	Flange-mount Type				Rating	Max.	Min.
HPP-VD2V-L31A3(-EE)-A	HPP-VD2V-F31A3(-EE)-A	14	* to 31.5	1 to 7 3 to 14	2,500	1,800	500
HPP-VD2V-L31A5(-EE)-A	HPP-VD2V-F31A5(-EE)-A						

**NOTE 1:** Pipe connection method "-EE" indicates the axial port type.

**NOTE 2:** Symbol "\*": The minimum discharge rate must be at least 12 L/min regardless of the speed.

## GENERAL PERFORMANCE CHARACTERISTICS

The following shows the performance curve of hydraulic fluid at a viscosity of  $20 \text{ mm}^2/\text{sec}$ .



## PIPING FLANGE

Specify the flange separately by selecting one from the following table.

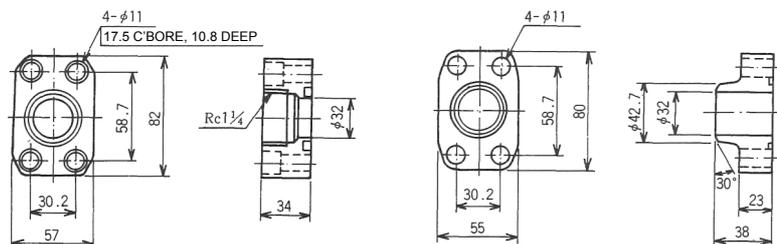
Name	Thread Type Piping Flange	Welding Type Piping Flange
Type	FHPP-10PT	FHPP-10WE
Bolt	M10×35	M10×35
O-ring	1BG40	1BG40

**NOTE 1:** The flange comes with bolts and an O-ring.

**NOTE 2:** Bolts of strength category 12.9 according to JIS B1176 are used.

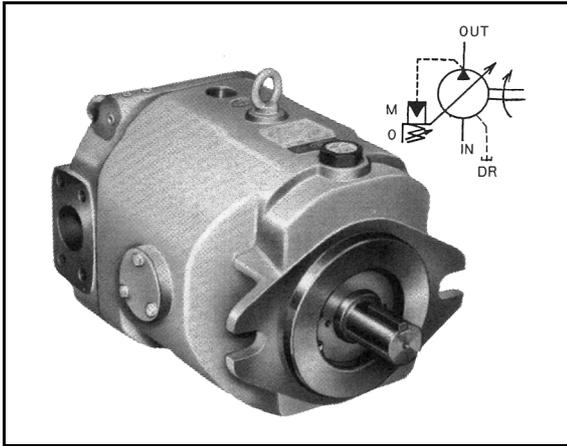
**NOTE 3:** The applicable standard for the O-ring is JIS B2401.

- FHPP-10PT (1-1/4 thread type)
- FHPP-10WE (1-1/4 welding type)





# VARIABLE-DISPLACEMENT PISTON PUMP (HPP-VF2V SERIES)



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  
In operations at 7 MPa, the noise measured at a point 1 meter from the pump running at 1,200 min<sup>-1</sup> is 59 dB (A) at cut-off and 64 dB (A) before cut-off.
2. High efficiency (energy saving)  
Volumetric efficiency: 95%, whole efficiency 83 %  
(at 6.5 MPa and 1,800 min<sup>-1</sup>)
3. High response

- The standard direction of rotation is clockwise, viewed from the shaft end.
- Run the drain pipe such that the drain port is located at the highest position.
- The permissible drain back pressure is 0.03 MPa max.
- The suction pressure must be within -0.02 MPa.
- Before starting the pump, supply hydraulic fluid through the oil filler port so that the pump is filled with the hydraulic fluid (2.3 L).
- When mounting a check valve at the pump outlet side, use a valve with a cracking pressure of 0.005 MPa.
- Always install a 150-mesh filter and strainer in the suction line. Installation of a line filter of 10 to 20 μm is recommended in the return line to the reservoir.
- How the discharge rate is adjusted using the discharge rate adjusting screw is shown in the graphs on page 290.
- The pump can be used for R&O type and abrasion-resistant type hydraulic fluid applications.
- The fluid to be used is hydraulic fluid with a viscosity equivalent to ISO VG32 or VG46. Use the fluid within the appropriate viscosity range of 150 to 20 mm<sup>2</sup>/sec. When water-glycol fluid is used, specify "G" at the end of model designation. In this case, the maximum speed is 1,800 min<sup>-1</sup>. Please consult us about the applicable brand of water-glycol fluid.
- Maintain the contamination level of the fluid at NAS class 11 or better.
- The permissible operating ambient temperature range is from 0 to 60°C.

## SPECIFICATIONS

Model		Rated Pressure (MPa)	Displacement (cm <sup>3</sup> /rev)	Pressure Adjustment Range (MPa)	Speed (min <sup>-1</sup> )		
Foot-mount Type	Flange-mount Type				Rating	Max.	Min.
HPP-VF2V-L63A3(-EE)-A	HPP-VF2V-F63A3(-EE)-A	7	* to 63	1.4 to 7	2,000	1,800	600

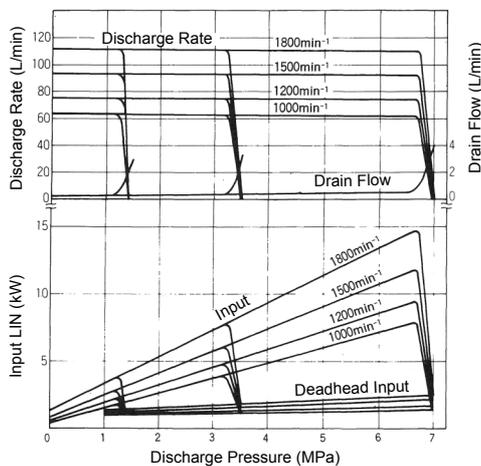
20 mm<sup>2</sup>/s

**NOTE 1:** Pipe connection method "-EE" indicates the axial port type.

**NOTE 2:** Symbol "\*\*": The minimum discharge rate must be at least 23 L/min regardless of the speed.

## GENERAL PERFORMANCE CHARACTERISTICS

The following shows the performance curve of hydraulic fluid at a viscosity of 20 mm<sup>2</sup>/sec.



## PIPING FLANGE

Specify the flange separately by selecting one from the following table.

Name	Thread Type Piping Flange	Welding Type Piping Flange
Type	FHPP-12PT	FHPP-12WE
Bolt	M12×40	M12×40
O-ring	1AG50	1AG45

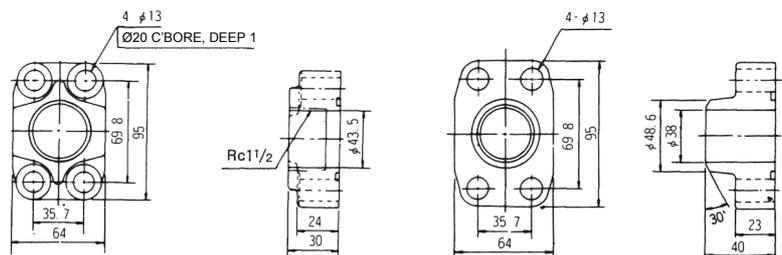
**NOTE 1:** The flange comes with bolts and an O-ring.

**NOTE 2:** Bolts of strength category 12.9 according to JIS B1176 are used.

**NOTE 3:** The applicable standard for the O-ring is JIS B2401.

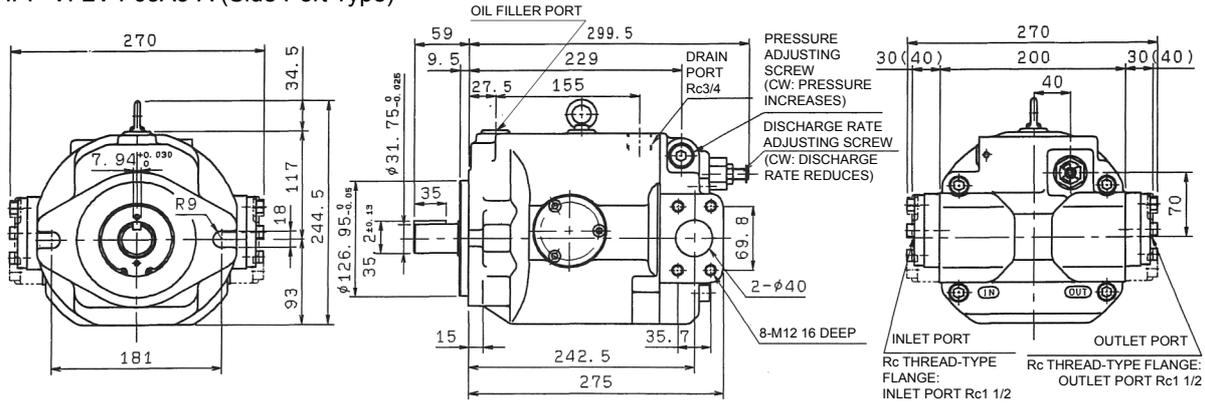
- FHPP-12PT  
(1-1/2 tapered gas thread connection type)

- FHPP-12WE  
(1-1/2 welding type)



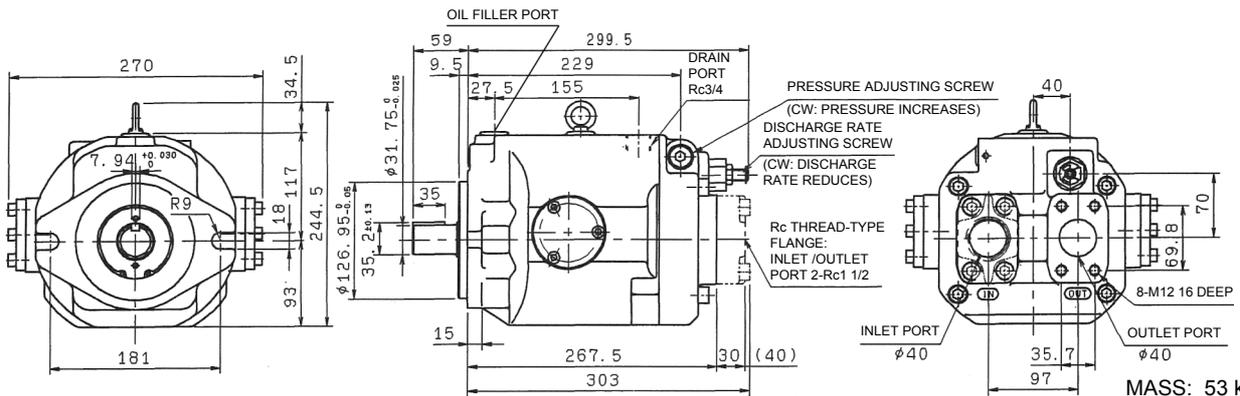
# EXTERNAL DIMENSIONS

## ● HPP-VF2V-F63A3-A (Side Port Type)

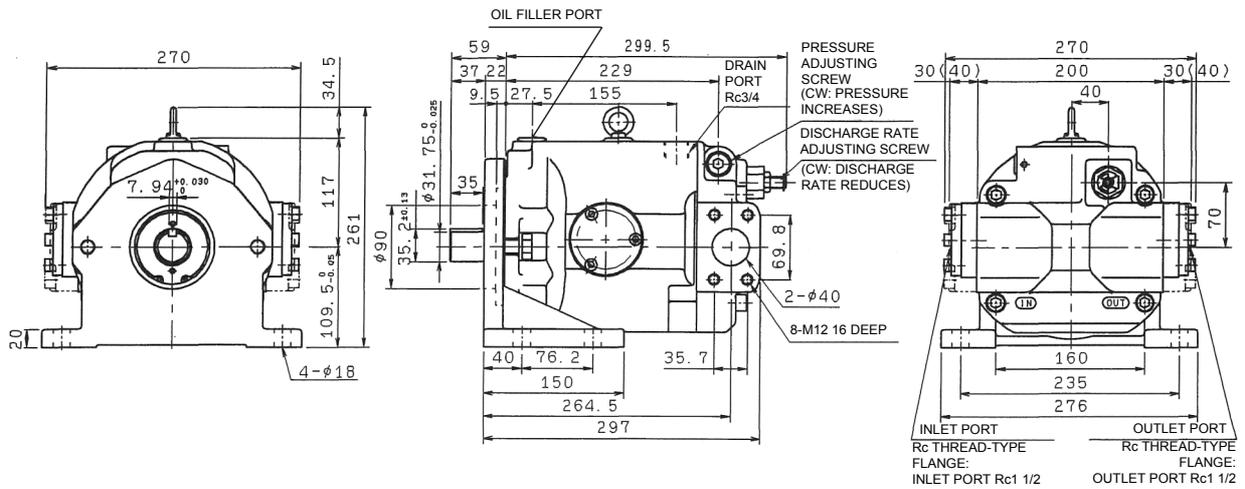


## ● HPP-VF2V-F63A3-EE-A (Axial Port Type)

MASS: 53 kg

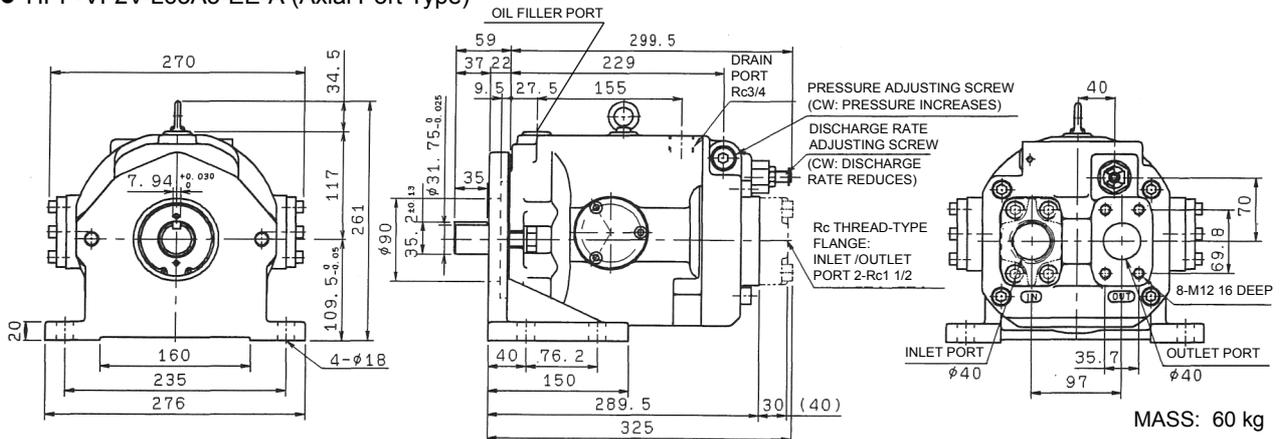


## ● HPP-VF2V-L63A3-A (Side Port Type)



MASS: 60 kg

## ● HPP-VF2V-L63A3-EE-A (Axial Port Type)



MASS: 60 kg

**NOTE:** Dimensions in parentheses are the dimensions of the welding type flange and those not in parentheses are the dimensions of the Rc thread type flange.