

# Vane Pump

Variable Displacement Vane Pump  
Fixed Displacement Vane Pump





## Operation Note

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## Variable Displacement Vane Pump

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## Fixed Displacement Vane Pump

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# Operation Note

## 1. Suitable fluids

Petroleum Base Oils ( anti-wear type oils or R & O type oils ) and Synthetic Fluids ( Phosphate ester type fluids ) can be used. However, the specifications of the pumps such as maximum pump speed may be changed according to the type of hydraulic fluids to be used. For details, please refer to the specifications of the pump concerned.

## 2. Proper operating viscosity of fluid

When the working pressure is under  $70 \text{ kgf/cm}^2$  ( 6.9Mpa ), the ideal viscosity range is 30~50 cSt. When the working pressure is over  $70 \text{ kgf/cm}^2$  ( 6.9Mpa ), the recommended viscosity range is 50~70 cSt.

## 3. Ideal operating temperature of fluid

The temperature of operating oil should be controlled in 30~60°C. If the temperature surpass 60°C, please use oil cooler. If it is lower than 15°C, please use oil heater.

## 4. Fluid cleanness

For fixed displacement vane pumps, Carry out sufficient contamination control for hydraulic fluids and keep contamination level within NAS class 12.

For Variable displacement vane pumps, Carry out sufficient contamination control for hydraulic fluids and keep contamination level within NAS class 10.

For piston pump, Carry out sufficient contamination control for hydraulic fluids and keep contamination level within NAS class 10. Also, use a tank filter on the suction side and install it more than 50 mm away from the tank bottom.

## 5. Suction and drain pressure

In order to reduce the in-draft resistance, the inlet/outlet of pump should not be distanced more than 1m from the fluid level. For variable displacement pumps, the drain pipe should be put under the fluid level. The suction pressure limitation is  $0.3 \text{ kgf/cm}^2$  ( 0.03Mpa ).

## 6. Coupling

The parallel error should be less than 0.05mm, the angle error should be less than 1°.

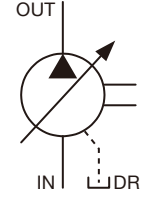
## 7. Rotation

Make sure the rotating direction of pump and motor is the same. Increase the rotating speed step by step until reaching the required pressure.

# VHO



## SYMBOLS



## ORDER CODES

**VHO - F - 15 - A2 - B5**

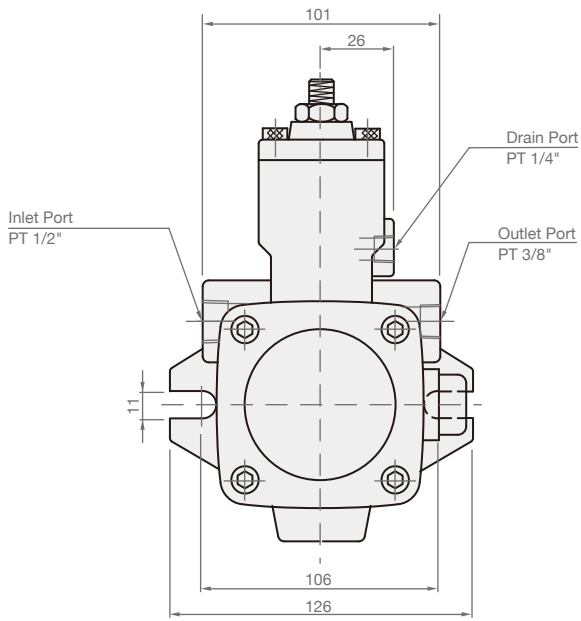
①      ②      ③      ④      ⑤

①	▶ Model Name	VHO	
②	▶ Mounting	F	flange type
		L	foot type
③	▶ Delivery at 1800 r.p.m.	08, 10, 12, 15, 20, 25	
④	▶ Pressure Adj. Range	A1	8~35 kgf/cm <sup>2</sup>
		A2	35~70 kgf/cm <sup>2</sup>
⑤	▶ Design Number	B5	ø15.875
		T9	spline shaft

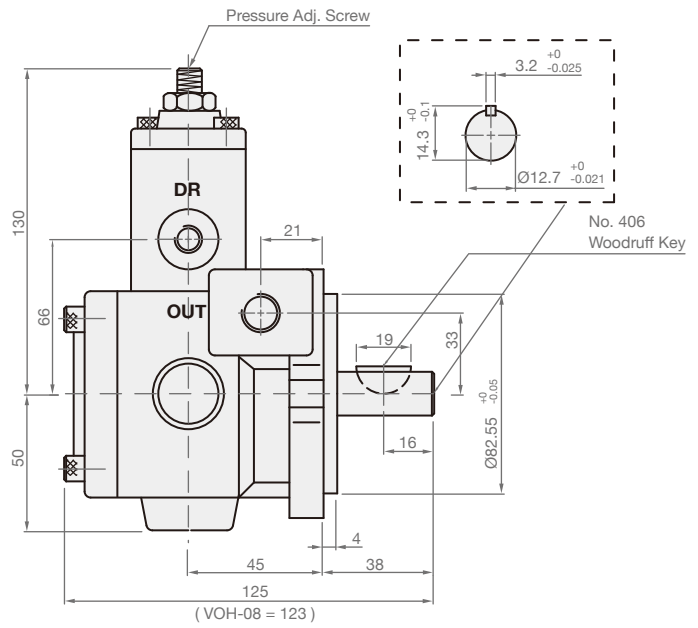
## MODEL SPEC.

Model	Max. Pressure (kgf/cm <sup>2</sup> )	Delivery at 3.5 kgf/cm <sup>2</sup> , 1800 r.p.m. (l/min)	Speed (r.p.m.)		Ports Size (PT)			Weight (kg)	
			Min.	Max.	Outlet	Inlet	DR	Foot Type	Flange Type
VHO-08	70	8	900	1800	3/8"	1/2"	1/4"	6	5
VHO-10	70	10							
VHO-12	70	12							
VHO-15	70	15							
VHO-20	70	20							
VHO-25	55	25							

► VHO-08, 12, 15, 20, 25

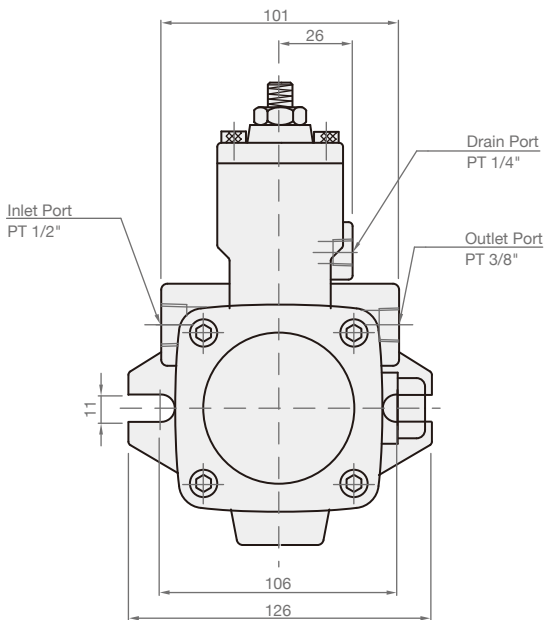


\* Note : without flow adjustment screw

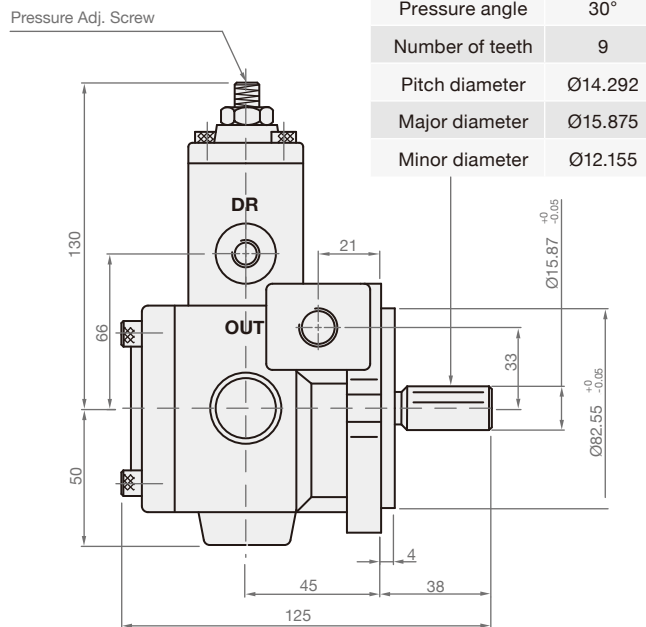


\* The shaft has Ø15.88 & keyway 4mm type option

► VHO-12, 15, 20, 25 (Spline Shaft)



\* Note : without flow adjustment screw

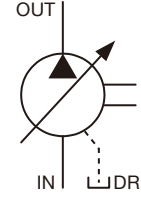


ANSI B92.1 Standard	
Module	DP16/32
Pressure angle	30°
Number of teeth	9
Pitch diameter	Ø14.292
Major diameter	Ø15.875
Minor diameter	Ø12.155

# VHI



## SYMBOLS



## ORDER CODES

**VHI - F - 30 - A2 - T9**

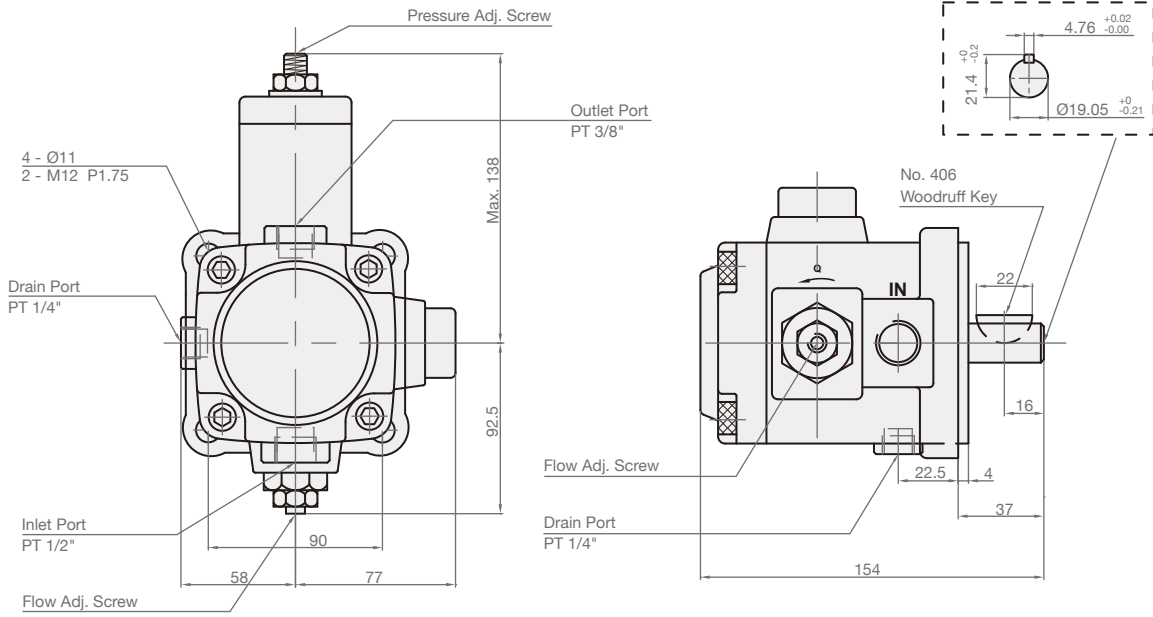
①      ②      ③      ④      ⑤

①	Model Name	VHI	
②	Mounting	F	flange type
		L	foot type
③	Delivery at 1800 r.p.m.	26, 30, 40, 45	
④	Pressure Adj. Range	A1	5~30 kgf/cm <sup>2</sup>
		A2	30~55 kgf/cm <sup>2</sup>
		A3	50~70 kgf/cm <sup>2</sup>
⑤	Design Number	T9	spline shaft
		none	straight shaft

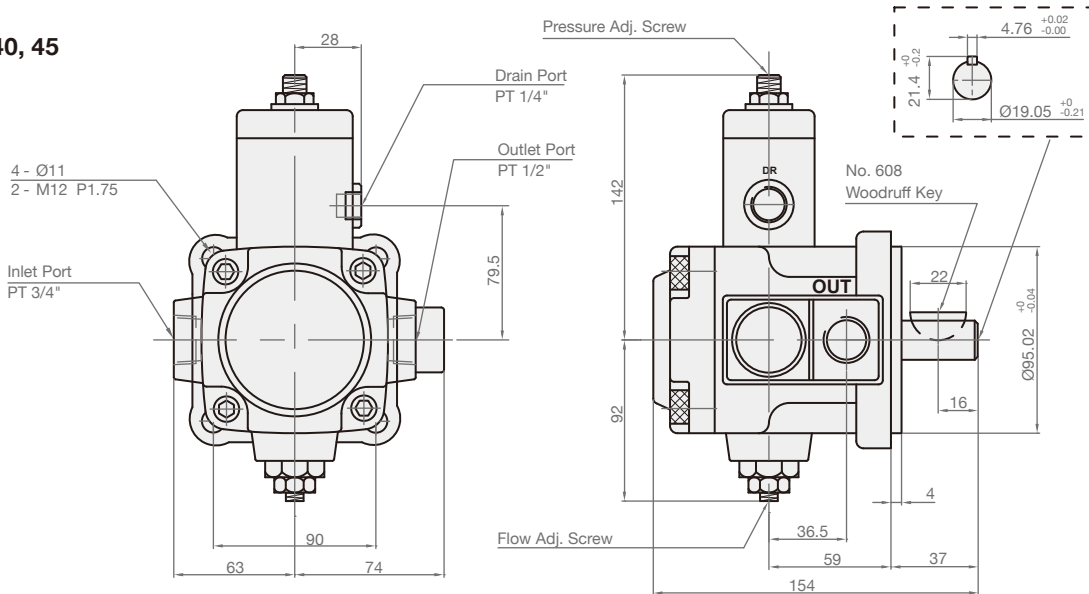
## MODEL SPEC.

Model	Max. Pressure (kgf/cm <sup>2</sup> )	Delivery at 3.5 kgf/cm <sup>2</sup> , 1800 r.p.m. (l/min)	Speed (r.p.m.)		Ports Size (PT)			Weight (kg)	
			Min.	Max.	Outlet	Inlet	DR	Foot Type	Flange Type
VHI-26	70	26	900	1800	3/8"	1/2"	1/4"	12	9.1
VHI-30	70	30			1/2"	3/4"	1/4"		
VHI-40	70	40			1/2"	3/4"	1/4"		
VHI-45	55	45			1/2"	3/4"	1/4"		

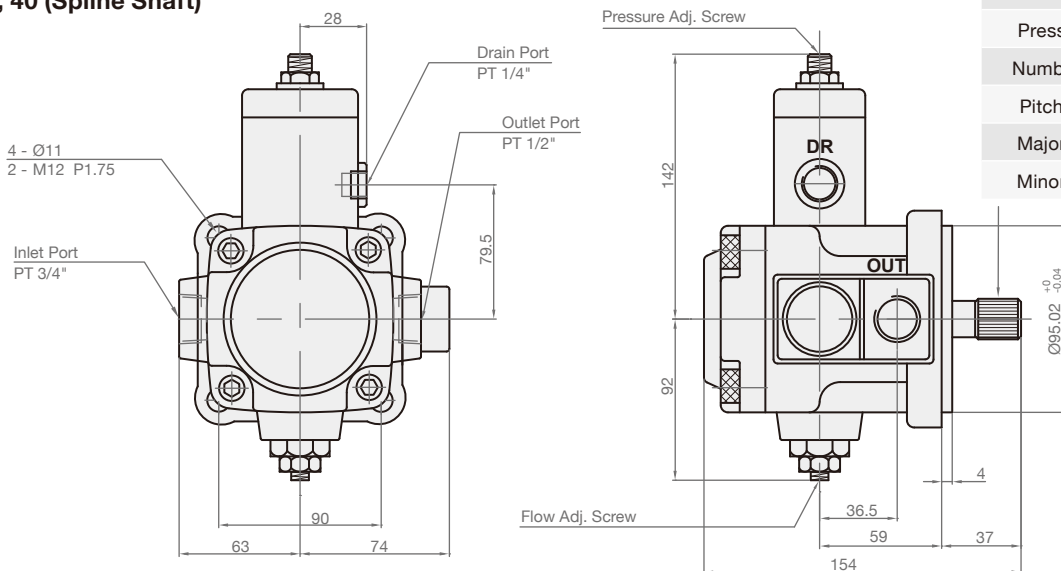
► VHI-F-26



► VHI-F-30, 40, 45



► VHI-F-30, 40 (Spine Shaft)



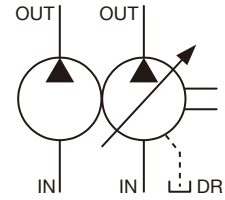
ANSI B92.1 Standard

Module	DP16/32
Pressure angle	30°
Number of teeth	9
Pitch diameter	Ø14.292
Major diameter	Ø15.875
Minor diameter	Ø12.155

# VHI+S (HGP)



## SYMBOLS



## ORDER CODES

**VHI** - **F** - **30+S** - **A1** - **T9**

1                      2                      3                      4                      5

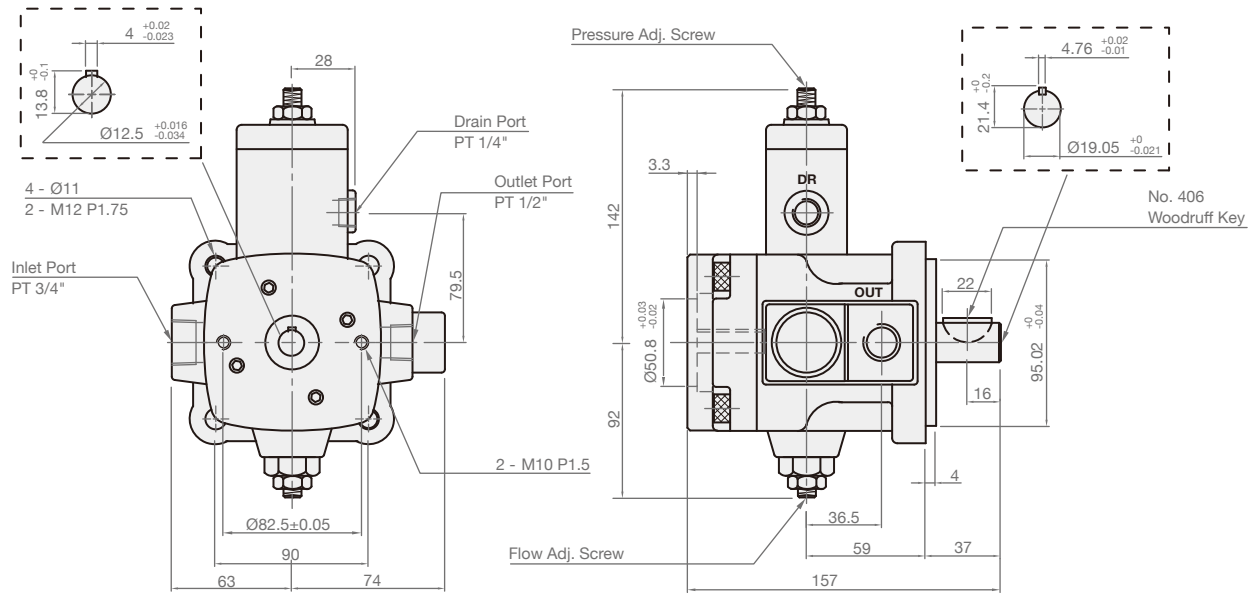
1 ▶	<b>Model Name</b>	<b>VHI</b>	
2 ▶	<b>Mounting</b>	<b>F</b>	flange type
		<b>L</b>	foot type
3 ▶	<b>Delivery at 1800 r.p.m.</b>	<b>26, 30, 40, 45</b>	
		<b>HGP-1A</b>	2B, 4BD, 4BE
		<b>HGP-2A</b>	4BJ
4 ▶	<b>Pressure Adj. Range</b>	<b>A1</b>	5~30 kgf/cm <sup>2</sup>
		<b>A2</b>	30~55 kgf/cm <sup>2</sup>
		<b>A3</b>	50~70 kgf/cm <sup>2</sup>
5 ▶	<b>Design Number</b>	<b>T9</b>	spline shaft
		<b>none</b>	straight shaft

## MODEL SPEC.

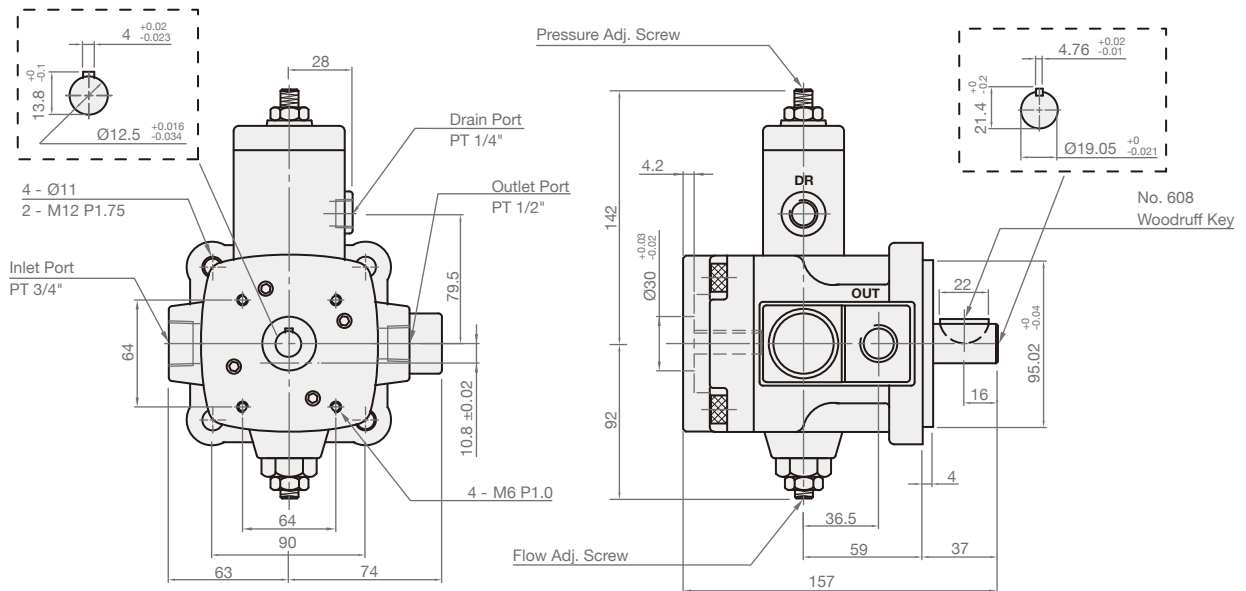
Model	Max. Pressure (kgf/cm <sup>2</sup> )	Delivery at 3.5 kgf/cm <sup>2</sup> , 1800 r.p.m. (l/min)	Speed (r.p.m.)		Ports Size (PT)			Weight (kg)	
			Min.	Max.	Outlet	Inlet	DR	Foot Type	Flange Type
VHI-26+S	70	26+S	900	1800	3/8"	1/2"	1/4"	12.4+G	9.5+G
VHI-30+S	70	30+S			1/2"	3/4"	1/4"		
VHI-40+S	70	40+S			1/2"	3/4"	1/4"		
VHI-45+S	55	45+S			1/2"	3/4"	1/4"		

\* The Delivery S: Please refer to P14 (HGP-1A & HGP-2A) specification of Gear Pump.  
The Weight G: Please refer to P14 (HGP-1A & HGP-2A) specification of Gear Pump.

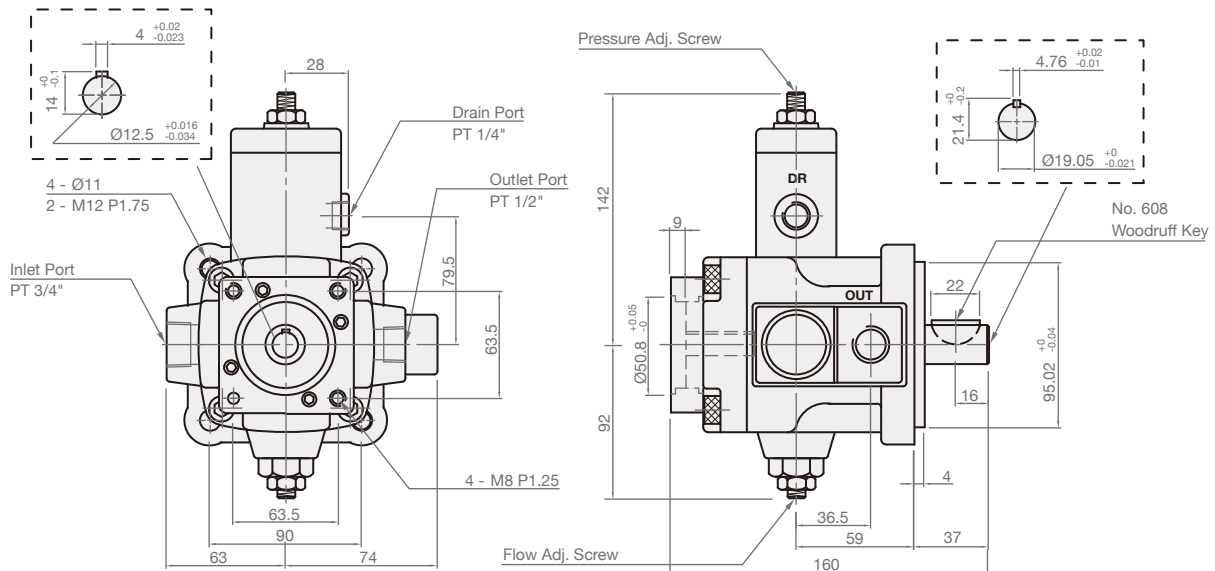
► VHI-26, 30, 40, 45 + HGP-1A (2B)



► VHI-26, 30, 40, 45 + HGP-1A (4BE)



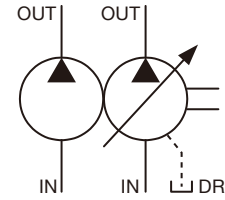
► VHI-30, 40, 45 + HGP-2A (4BJ)



# VHP+S (HGP)



## SYMBOLS



## ORDER CODES

**VHP** - **F** - **40+S** - **A1** - **T9**

1                      2                      3                      4                      5

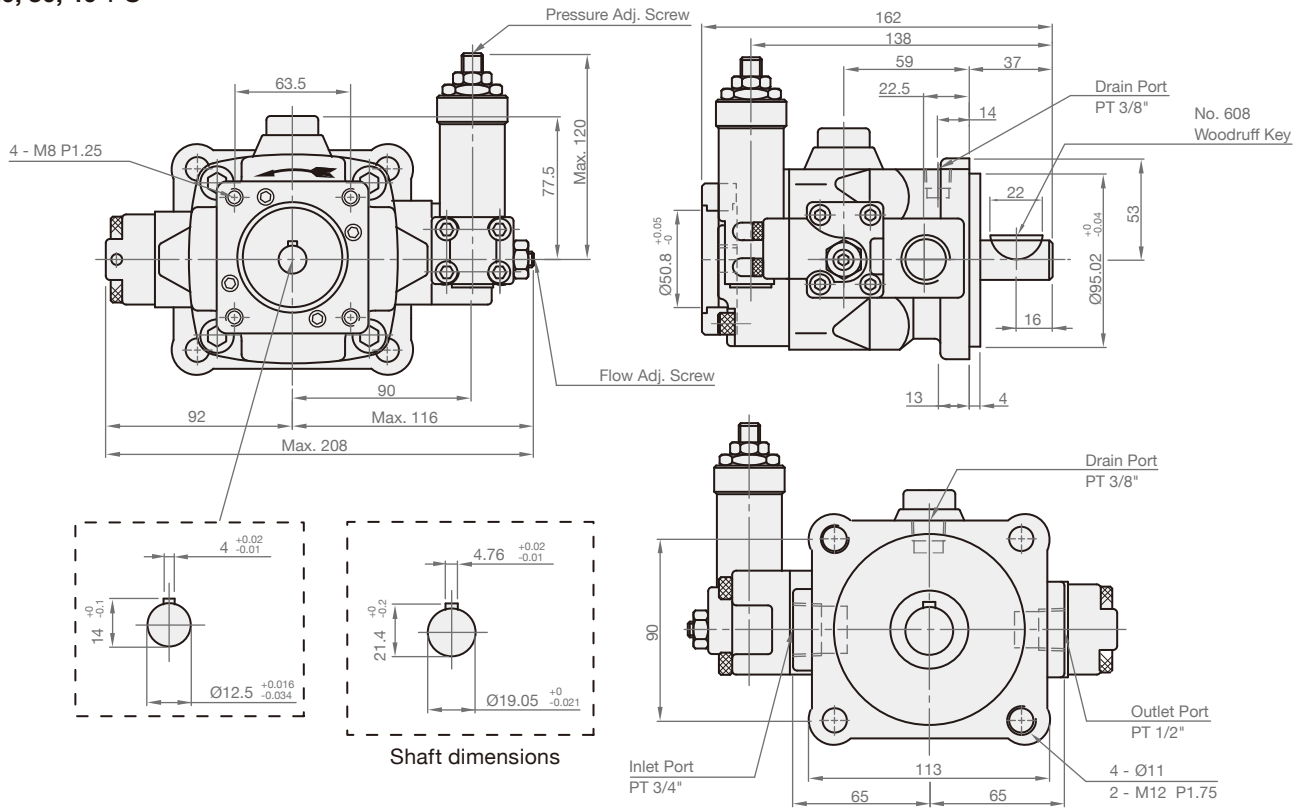
1	▶ Model Name	VHP	
2	▶ Mounting	F	flange type
		L	foot type
3	▶ Delivery at 1800 r.p.m.	20, 26, 30, 40, 54, 70, 86	
		HGP-1A	2B, 4BD, 4BE
		HGP-2A	4BJ
4	▶ Pressure Adj. Range	A1	15~35 kgf/cm <sup>2</sup>
		A2	35~70 kgf/cm <sup>2</sup>
		A3	70~105 kgf/cm <sup>2</sup>
		A4	105~140 kgf/cm <sup>2</sup>
5	▶ Design Number	T9	spline shaft
		none	straight shaft

## MODEL SPEC.

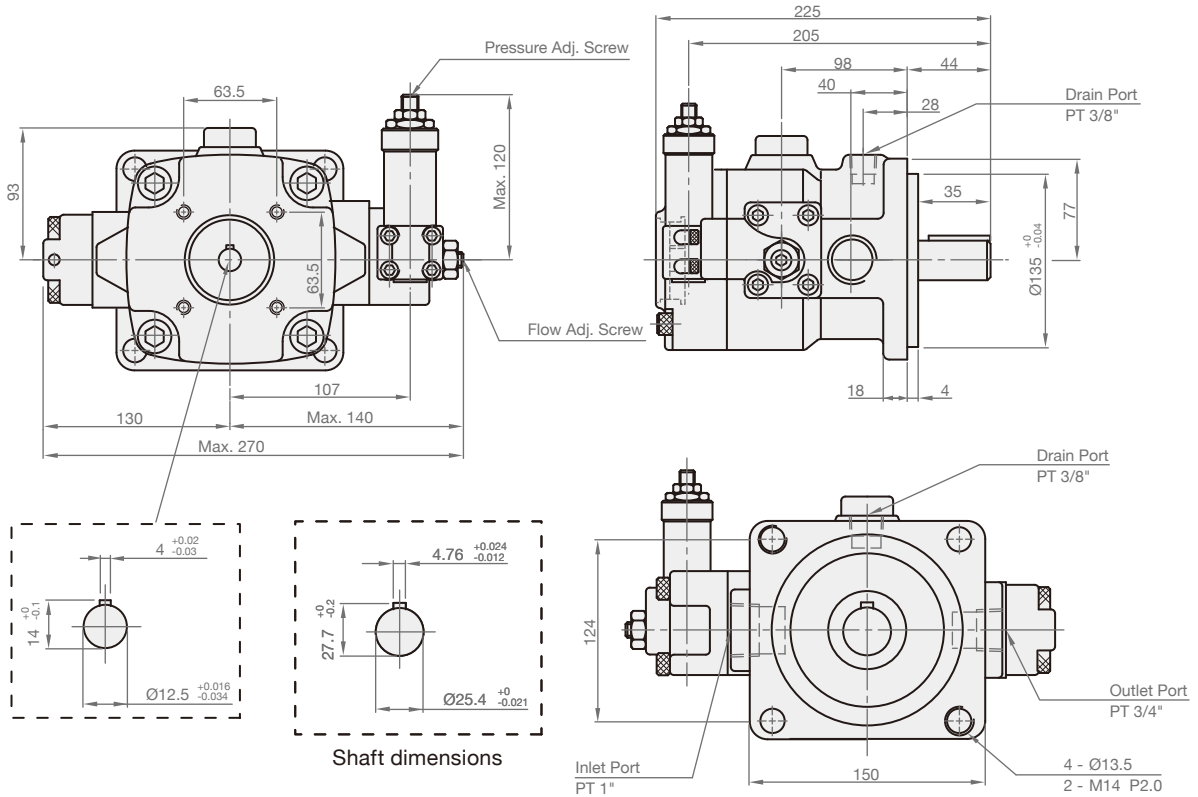
Model	Max. Pressure (kgf/cm <sup>2</sup> )	Delivery at 3.5 kgf/cm <sup>2</sup> , 1800 r.p.m. (l/min)	Speed (r.p.m.)		Ports Size (PT)			Weight (kg)	
			Min.	Max.	Outlet	Inlet	DR	Foot Type	Flange Type
VHP-20+S	140	20+S	900	1800	1/2"	3/4"	3/8"	13.2+G	10.2+G
VHP-26+S	140	26+S			1/2"	3/4"	3/8"		
VHP-30+S	140	30+S			1/2"	3/4"	3/8"		
VHP-40+S	105	40+S			1/2"	3/4"	3/8"		
VHP-54+S	140	54+S	800	1800	3/4"	1"	3/8"	36.7+G	28.7+G
VHP-70+S	140	70+S			3/4"	1"	3/8"		
VHP-86+S	105	86+S			3/4"	1"	3/8"		

\* The Delivery S: Please refer to P14 (HGP-1A & HGP-2A) specification of Gear Pump.  
The Weight G: Please refer to P14 (HGP-1A & HGP-2A) specification of Gear Pump.

► VHP-20, 30, 40 + S



► VHP-54, 70, 86 + S



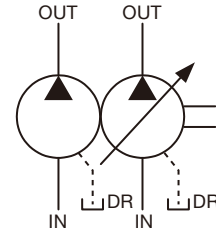




# VHOD



## SYMBOLS



## ORDER CODES

**VHOD** - **F** - **2020** - **A1** - **T9**

1
2
3
4
5

1	Model Name	VHOD	
2	Mounting	F	flange type
		L	foot type
3	Delivery at 1800 r.p.m.	1212, 1515, 2020, 2525	
4	Pressure Adj. Range	A1	8~35 kgf/cm <sup>2</sup>
		A2	35~70 kgf/cm <sup>2</sup>
5	Design Number	T9	spline shaft
		none	straight shaft

## MODEL SPEC.

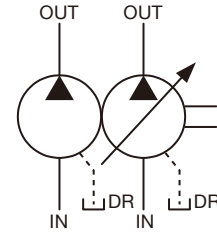
Model	Max. Pressure (kgf/cm <sup>2</sup> )	Delivery at 3.5 kgf/cm <sup>2</sup> , 1800 r.p.m. (l/min)	Speed (r.p.m.)		Ports Size (PT)			Weight (kg)	
			Min.	Max.	Outlet	Inlet	DR	Foot Type	Flange Type
VHOD-1212	70	12+12	900	1800	3/8"	1/2"	1/4"	10.5	9.5
VHOD-1515	70	15+15							
VHOD-2020	70	20+20							
VHOD-2525	55	25+25							



# VHID



## SYMBOLS



## ORDER CODES

**VHID** - **F** - **3030** - **A2** - **T9**

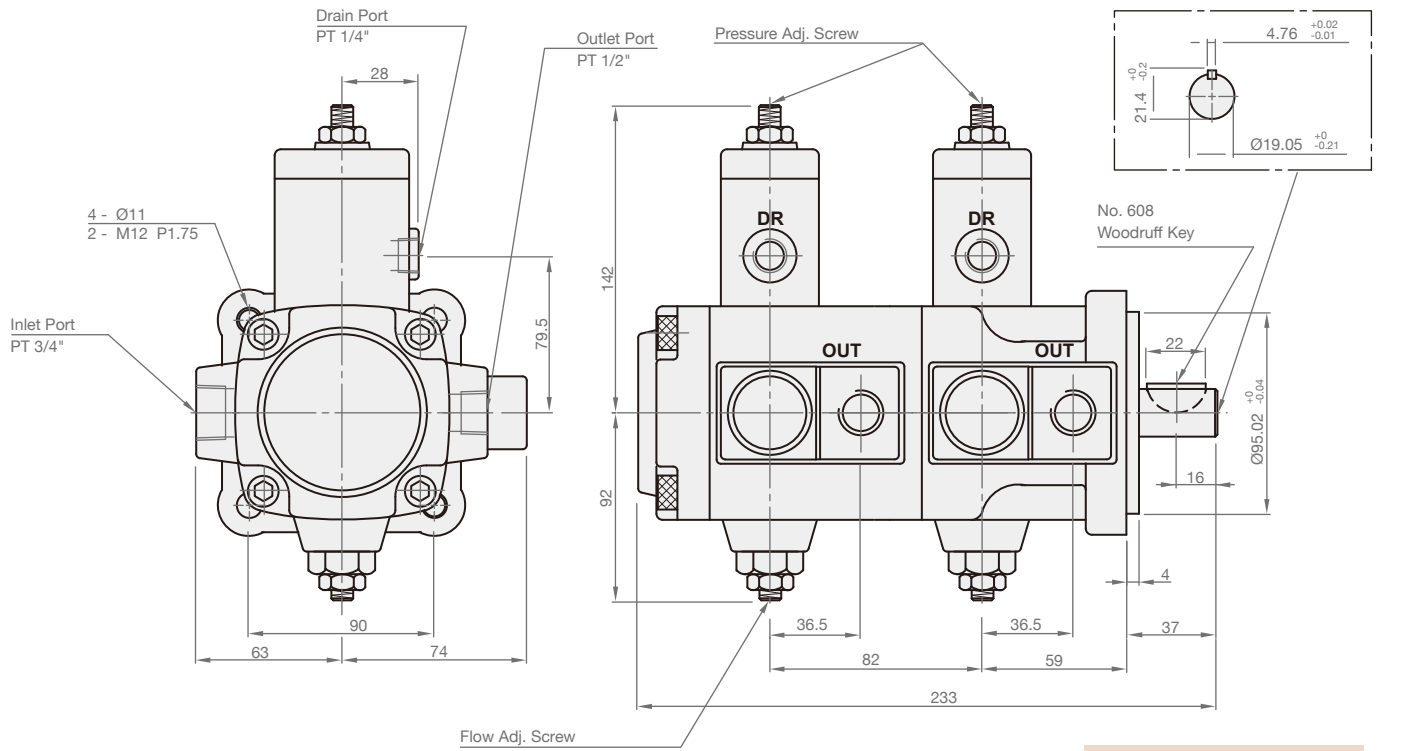
1
2
3
4
5

1	Model Name	VHID	
2	Mounting	F	flange type
		L	foot type
3	Delivery at 1800 r.p.m.	3030, 4040	
4	Pressure Adj. Range	A1	5~30 kgf/cm <sup>2</sup>
		A2	30~55 kgf/cm <sup>2</sup>
		A3	50~70 kgf/cm <sup>2</sup>
5	Design Number	T9	spline shaft
		none	straight shaft

## MODEL SPEC.

Model	Max. Pressure (kgf/cm <sup>2</sup> )	Delivery at 3.5 kgf/cm <sup>2</sup> , 1800 r.p.m. (l/min)	Speed (r.p.m.)		Ports Size (PT)			Weight (kg)	
			Min.	Max.	Outlet	Inlet	DR	Foot Type	Flange Type
VHID-3030	70	30+30	900	1800	1/2"	3/4"	1/4"	19	16
VHID-4040	70	40+40							

► VHID



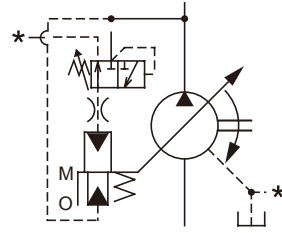
**ANSI B92.1 Standard**

Module	DP16/32
Pressure angle	30°
Number of teeth	9
Pitch diameter	Ø14.292
Major diameter	Ø15.875
Minor diameter	Ø12.155

# VHP



## SYMBOLS



## ORDER CODES

**VHP - F - 54 - A3 - T9**

①      ②      ③      ④      ⑤

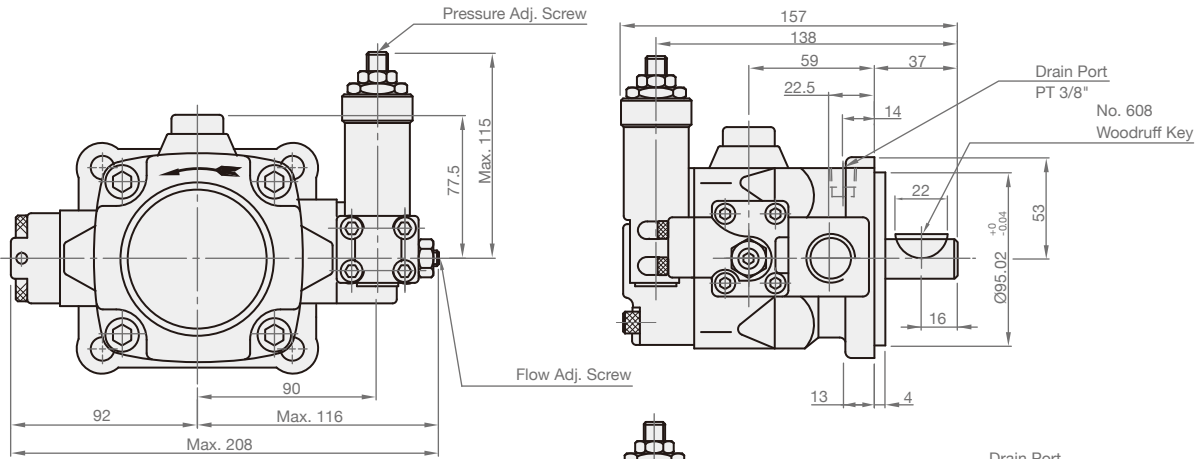
①	Model Name	VHP	
②	Mounting	F	flange type
		L	foot type
③	Delivery at 1800 r.p.m.	20, 26, 30, 40, 54, 70, 86	
④	Pressure Adj. Range	A1	8~35 kgf/cm <sup>2</sup>
		A2	35~70 kgf/cm <sup>2</sup>
		A3	70~105 kgf/cm <sup>2</sup>
		A4	105~140 kgf/cm <sup>2</sup>
⑤	Design Number	T9	spline shaft
		none	straight shaft

## MODEL SPEC.

Model	Max. Pressure (kgf/cm <sup>2</sup> )	Delivery at 3.5 kgf/cm <sup>2</sup> , 1800 r.p.m. (l/min)	Speed (r.p.m.)		Ports Size (PT)			Weight (kg)	
			Min.	Max.	Outlet	Inlet	DR	Foot Type	Flange Type
VHP-20 *	140	20	900	1800	1/2"	3/4"	3/8"	12.5	9.5
VHP-26 *	140	26							
VHP-30 *	140	30							
VHP-40 *	105	40							
VHP-54	140	54	800	1800	3/4"	1"	3/8"	35	27
VHP-70	105	70							
VHP-86	105	86							

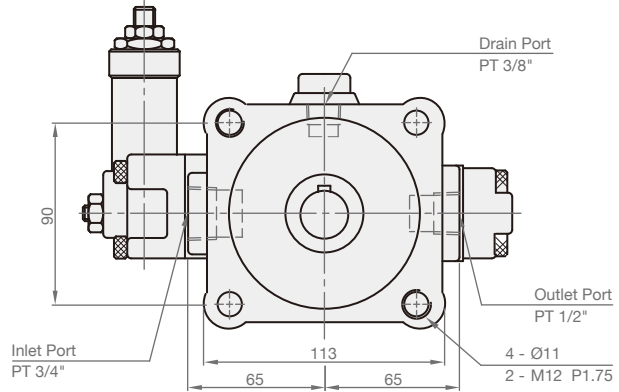
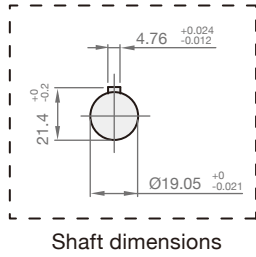
\* We also supply spline key type.

► VHP-20, 26, 30, 40

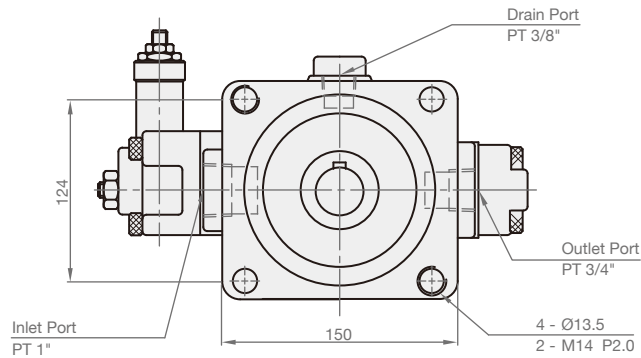
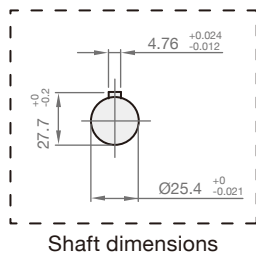
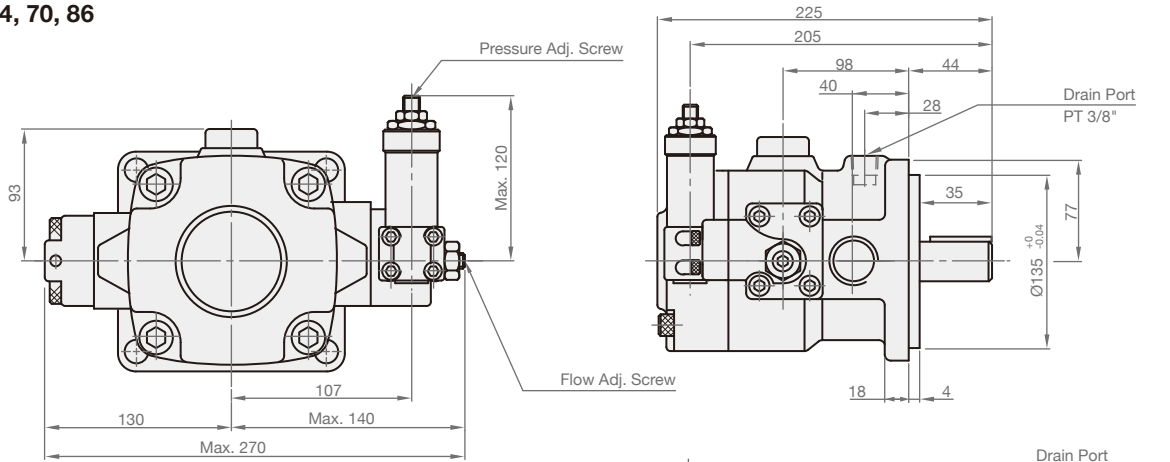


\* The shaft has spline key option.

ANSI B92.1 Standard	
Module	DP16/32
Pressure angle	30°
Number of teeth	9
Pitch diameter	Ø14.292
Major diameter	Ø15.875
Minor diameter	Ø12.155



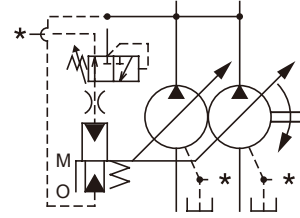
► VHP-54, 70, 86



# VHPD



## SYMBOLS



## ORDER CODES

**VHPD** - **F** - **3030** - **A2** - **T9**

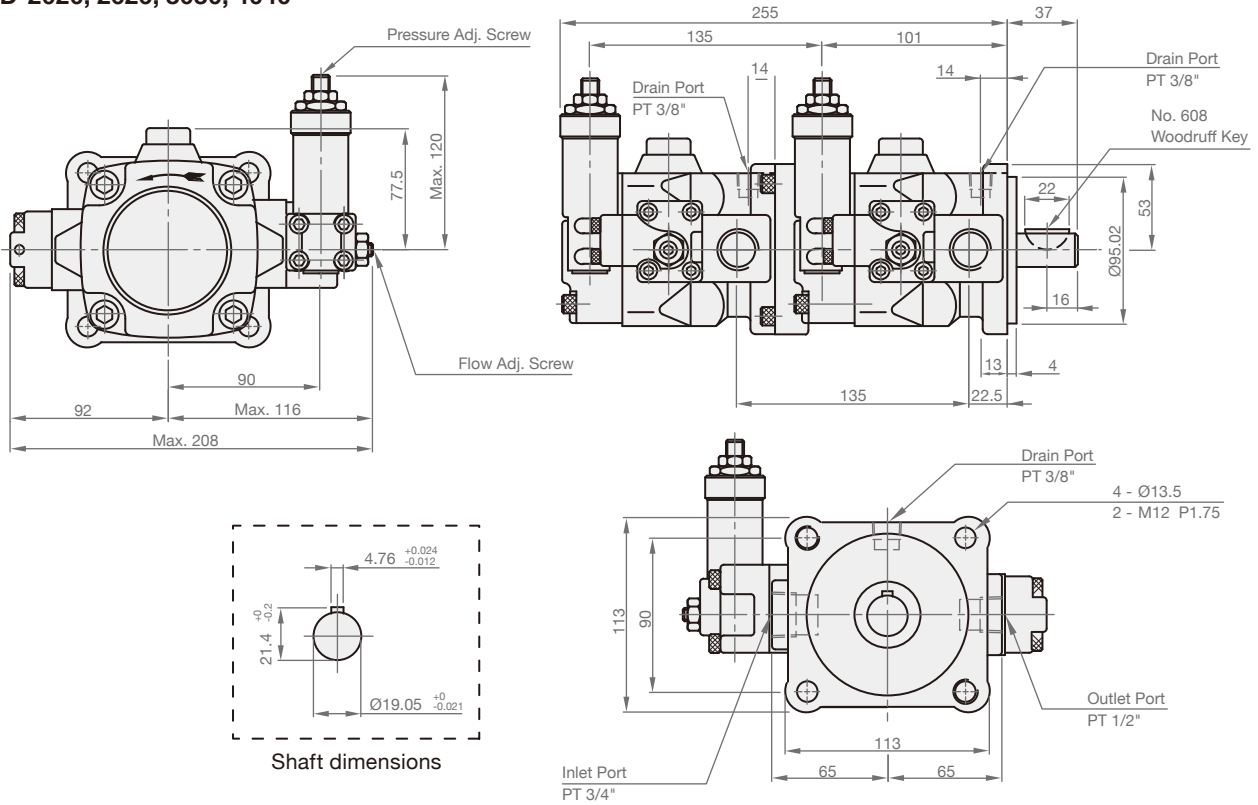
1                      2                      3                      4                      5

1	▶ Model Name	VHPD	
2	▶ Mounting	F	flange type
		L	foot type
3	▶ Delivery at 1800 r.p.m.	2020, 2626, 3030, 4040, 5430, 5440, 7030, 7040, 8630, 8640	
4	▶ Pressure Adj. Range	A1	8~35 kgf/cm <sup>2</sup>
		A2	35~70 kgf/cm <sup>2</sup>
		A3	70~105 kgf/cm <sup>2</sup>
		A4	105~140 kgf/cm <sup>2</sup>
5	▶ Design Number	T9	spline shaft
		none	straight shaft

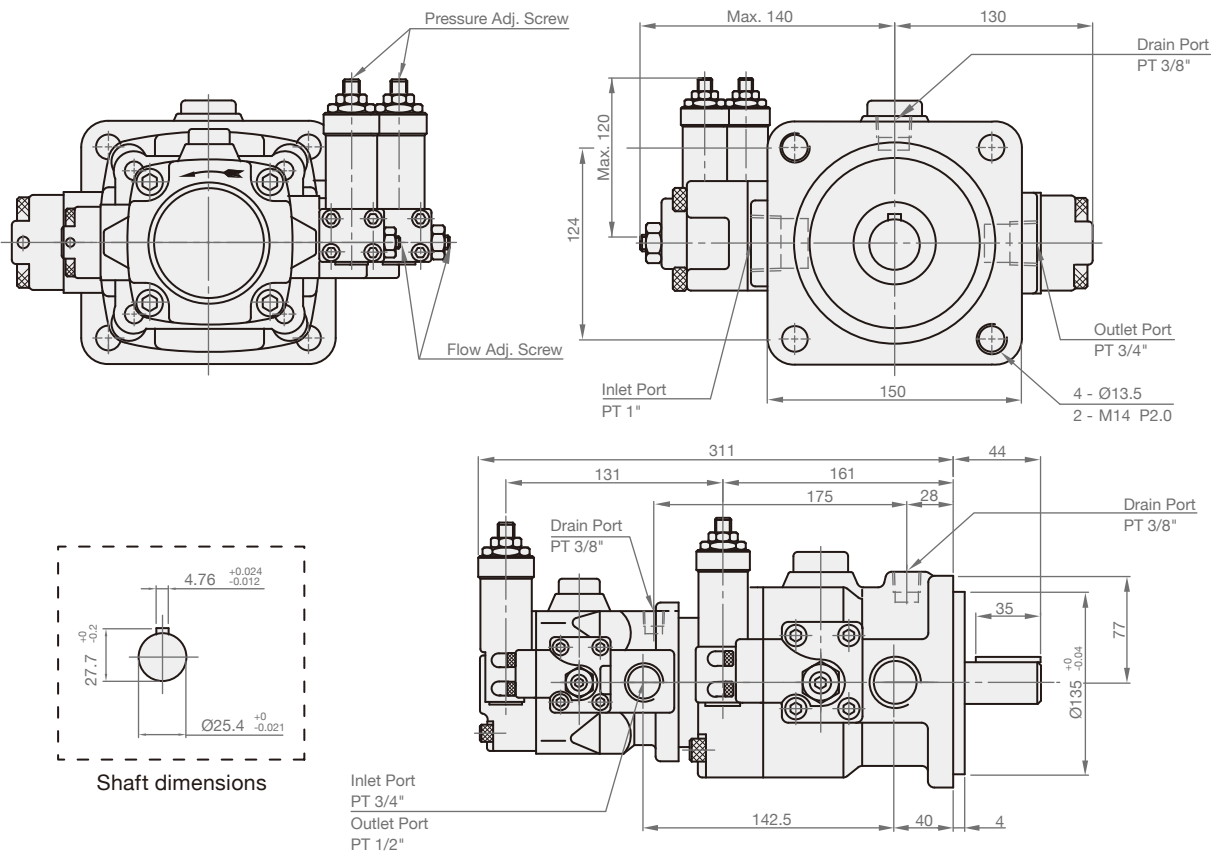
## MODEL SPEC.

Model	Max. Pressure (kgf/cm <sup>2</sup> )	Delivery at 3.5 kgf/cm <sup>2</sup> , 1800 r.p.m. (l/min)	Speed (r.p.m.)		Ports Size (PT)			Weight (kg)	
			Min.	Max.	Outlet	Inlet	DR	Foot Type	Flange Type
VHPD-2020	140	20+20	900	1800	1/2"	3/4"	3/8"	30	23
VHPD-2626	140	26+26							
VHPD-3030	140	30+30							
VHPD-4040	105	40+40							
VHPD-5430	105	54+30	800	1800	3/4" & 1/2"	1" & 3/4"	3/8"	49	39
VHPD-5440	105	54+40							
VHPD-7030	105	70+30							
VHPD-7040	105	70+40							
VHPD-8630	105	86+30							
VHPD-8640	105	86+40							

► **VHPD-2020, 2626, 3030, 4040**



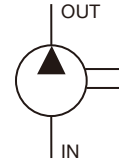
► **VHPD-5430, 5440, 7030, 7040, 8630, 8640**



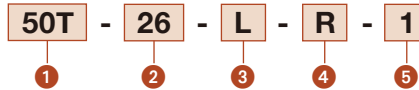
# 50T



## SYMBOLS



## ORDER CODES

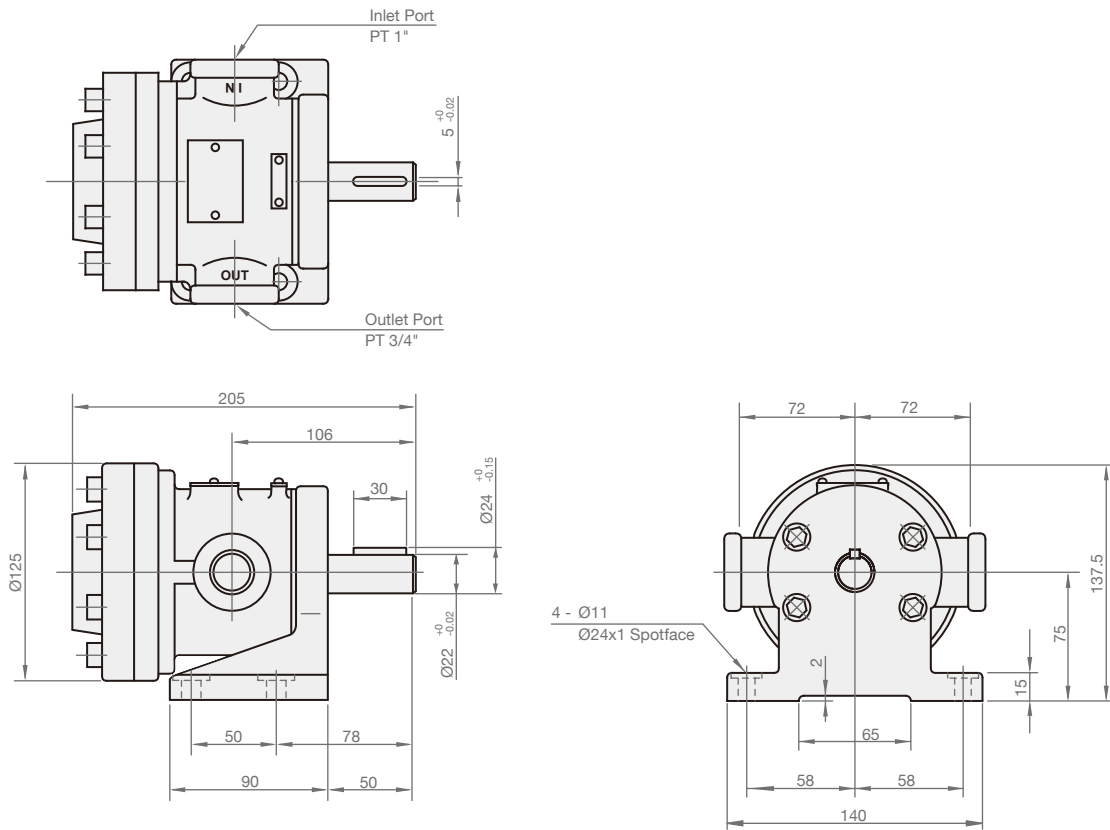


1	Model Name	50T	
2	Delivery at 1000 r.p.m.	07, 10, 12, 14, 17, 20, 23, 26, 30, 36, 39, 43	
3	Mounting	F	flange type
		L	foot type
4	Direction of Revolving (Side View of Self Aligning Bearing)	R	clockwise direction
		L	counter clockwise direction
5	Shaft Size	1	19.05 mm
		2	22 mm

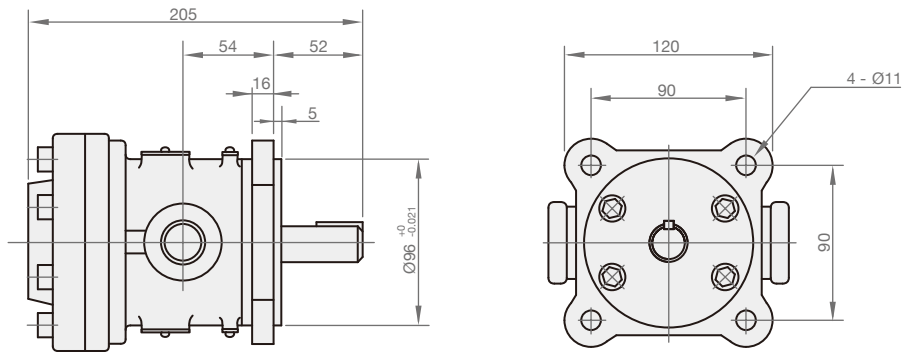
## MODEL SPEC.

Model	Delivery Capacity (cc/rev)				Max. Pressure (kgf/cm <sup>2</sup> )	Speed (r.p.m.)		Ports Size (PT)		Weight (kg)	
	Speed (r.p.m.)					Min.	Max.	Inlet	Outlet	Foot Type	Flange Type
	1000	1200	1500	1800							
50T-07	7	8.2	10.3	12.5	70	950	1800	1"	3/4"	10.5	9
50T-10	10	12	15	18							
50T-12	12.2	14.3	18.2	21.5							
50T-14	14.5	17.3	21.5	26							
50T-17	17.1	20.2	25.5	31.5							
50T-20	20.0	23.8	29.8	36.1							
50T-23	23.1	27.4	34.3	41.3							
50T-26	26.2	31.2	39.2	41.5							
50T-30	30.2	36.2	45.2	54.1							
50T-36	36.2	41.5	54.5	64.2							
50T-39	39	46.6	58.3	-							
50T-43	43	51.6	64.5	-							

► 50T (Foot Type)



► 50T (Flange Type)



\* The shaft has  $\varnothing 19.05$ mm & keyway 4.76mm & flange  $\varnothing 95$ mm type

# 150T

## SYMBOLS



## ORDER CODES

**150T** - **48** - **L** - **R** - **1**

1                      2                      3                      4                      5

1	▶ Model Name	150T	
2	▶ Delivery at 1000 r.p.m.	48, 61, 75, 94, 116, 125, 150	
3	▶ Mounting	F	flange type
		L	foot type
4	▶ Direction of Revolving (Side View of Self Aligning Bearing)	R	clockwise direction
		L	counter clockwise direction
5	▶ Shaft Size	1	30 mm

## MODEL SPEC.

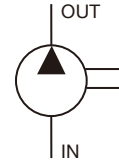
Model	Delivery Capacity (cc/rev)				Max. Pressure (kgf/cm <sup>2</sup> )	Speed (r.p.m.)		Ports Size (PT)		Weight (kg)	
	Speed (r.p.m.)					Min.	Max.	Inlet	Outlet	Foot Type	Flange Type
	1000	1200	1500	1800							
150T-48	48.2	58	72.6	86.4	70	900	1500	1 1/2"	1 1/4"	26	25
150T-61	61.4	73.8	92	110.6							
150T-75	75	90.5	113.1	135.6							
150T-94	94	113.1	141.3	-							
150T-116	116.2	139.5	174.2	-							
150T-125	125	150	187.5	-							
150T-150	150	180	-	-	55	900	1200	1 1/2"	1 1/4"	26	25



# PV2R1



## SYMBOLS



## ORDER CODES

**PV2R1** - **06** - **L** - **R**

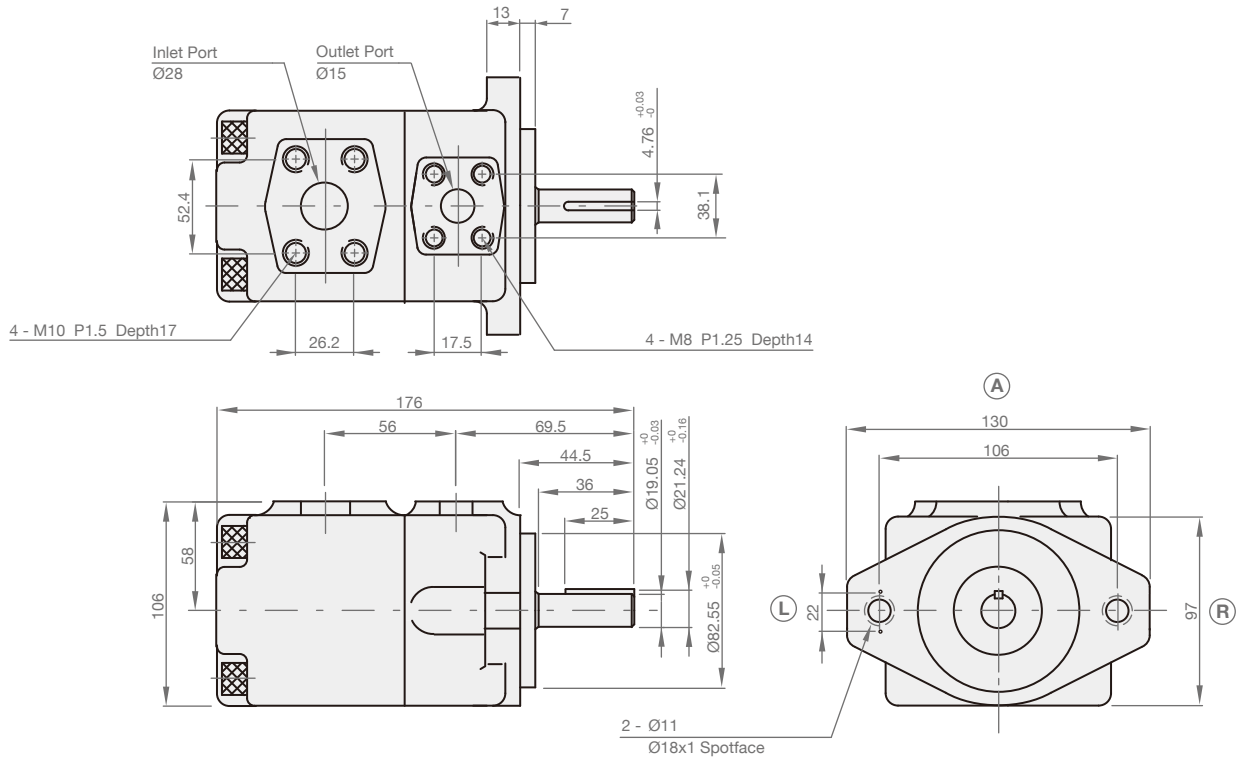
1
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4

1	▶ <b>Model Name</b>	<b>PV2R1</b>	
2	▶ <b>Delivery at 1000 r.p.m.</b>	<b>06, 08, 10, 12, 14, 17, 19, 23, 25, 31, 33</b>	
3	▶ <b>Mounting</b>	<b>F</b>	flange type
		<b>L</b>	foot type
4	▶ <b>Direction of Revolving</b> (Side View of Self Aligning Bearing)	<b>R</b>	clockwise direction
		<b>L</b>	counter clockwise direction

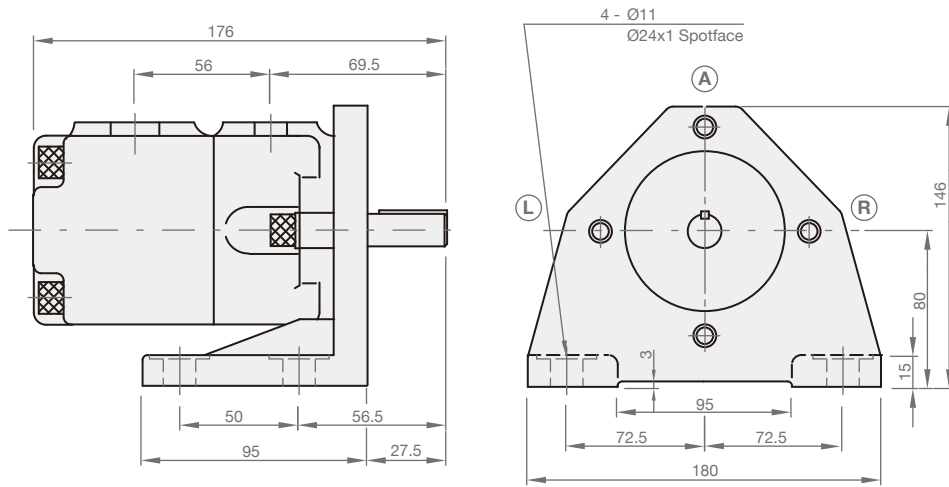
## MODEL SPEC.

Model	Delivery Capacity (cc/rev)				Operating Pressure (kgf/cm <sup>2</sup> )		Speed (r.p.m.)		Ports Size (PT)		Weight (kg)	
	Speed (r.p.m.)											
	1000	1200	1500	1800	Max.	Rated	Min.	Max.	Inlet	Outlet	Foot Type	Flange Type
PV2R1-06	6.1	7.3	9.2	11.3	210	175	950	1800	1"	1/2"	11.2	9
PV2R1-08	8	9.5	12	14.5								
PV2R1-10	10.1	12.2	15.4	18.4								
PV2R1-12	12.2	14.2	18.1	21.8								
PV2R1-14	13.7	17	21.5	25.6								
PV2R1-17	16.6	20.5	25.6	30.7								
PV2R1-19	18.6	23	28.8	34.5								
PV2R1-23	22.7	27.9	34.9	41.9								
PV2R1-25	25.3	30	37.3	-	175	160	950	1500	1"	1/2"	11.2	9
PV2R1-31	31	37.3	46.06	-								
PV2R1-33	33	39.6	49.5	-								

► PV2R1 (Flange Type)



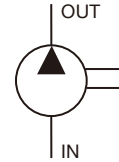
► PV2R1 (Foot Type)



# PV2R2



## SYMBOLS



## ORDER CODES

**PV2R2** - **22** - **L** - **R**

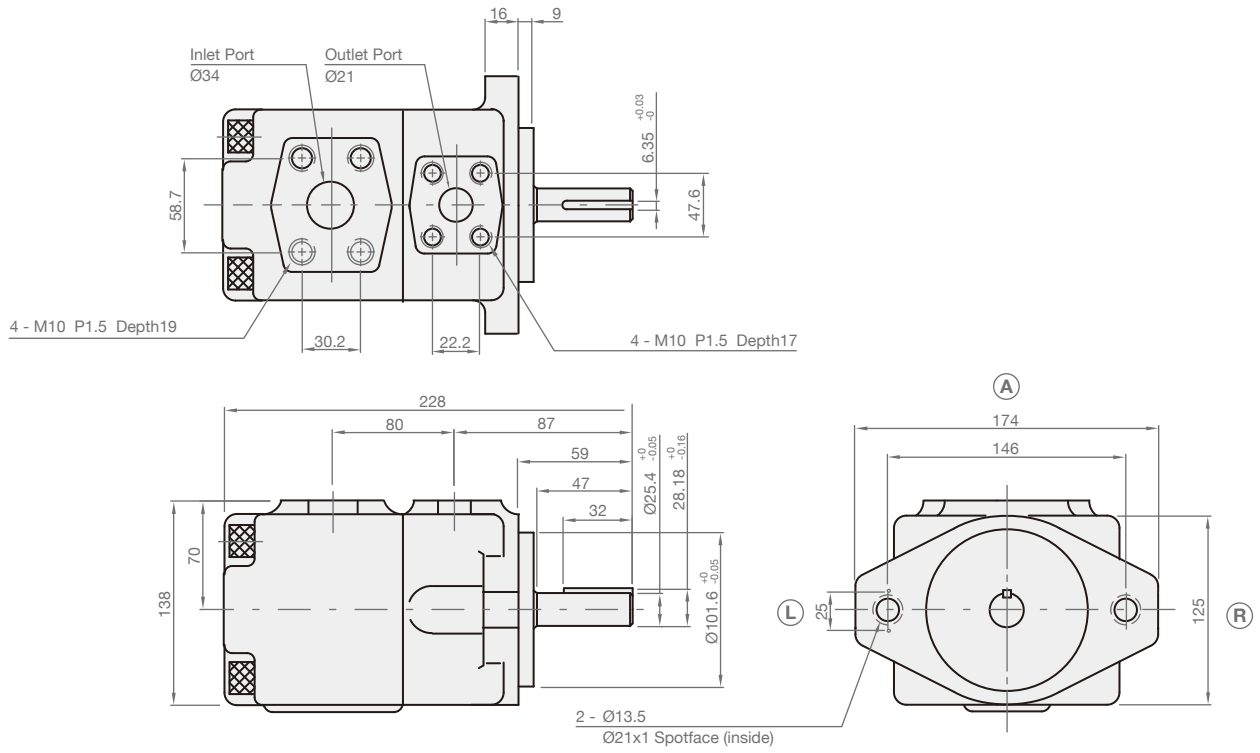
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1	▶ <b>Model Name</b>	<b>PV2R2</b>
2	▶ <b>Delivery at 1000 r.p.m.</b>	<b>22, 26, 33, 38, 41, 47, 53, 59, 65, 75</b>
3	▶ <b>Mounting</b>	<b>F</b> flange type
		<b>L</b> foot type
4	▶ <b>Direction of Revolving</b> (Side View of Self Aligning Bearing)	<b>R</b> clockwise direction
		<b>L</b> counter clockwise direction

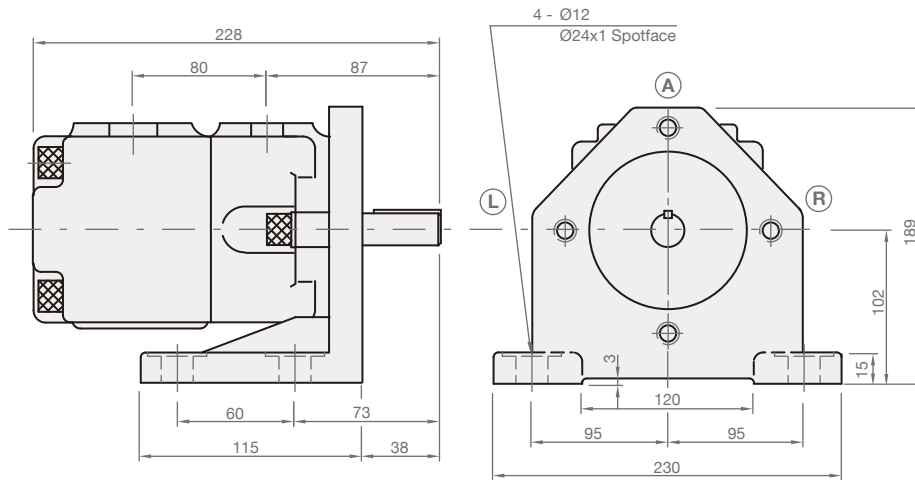
## MODEL SPEC.

Model	Delivery Capacity (cc/rev)				Operating Pressure (kgf/cm <sup>2</sup> )		Speed (r.p.m.)		Ports Size (PT)		Weight (kg)	
	Speed (r.p.m.)				Max.	Rated	Min.	Max.	Inlet	Outlet	Foot Type	Flange Type
	1000	1200	1500	1800								
PV2R2-22	22	26.4	33	39.6	210	175	950	1800	1 1/4"	3/4"	23.3	19
PV2R2-26	26	31.2	39	46.8								
PV2R2-33	33	38.5	48.1	57.7								
PV2R2-38	38	45.6	57	68.4								
PV2R2-41	41.3	49.2	61.5	73.8								
PV2R2-47	47.2	57.8	71.3	86.6								
PV2R2-53	53.1	63.5	79.7	95.8								
PV2R2-59	59.2	71	88.8	106.9								
PV2R2-65	65.2	78	97.8	-	175	160	950	1500	1 1/4"	3/4"	23.3	19
PV2R2-75	75	90	112.5	-								

► PV2R2 (Flange Type)



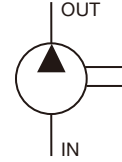
► PV2R2 (Foot Type)



# PV2R3



## SYMBOLS



## ORDER CODES

**PV2R3** - **60** - **L** - **R**

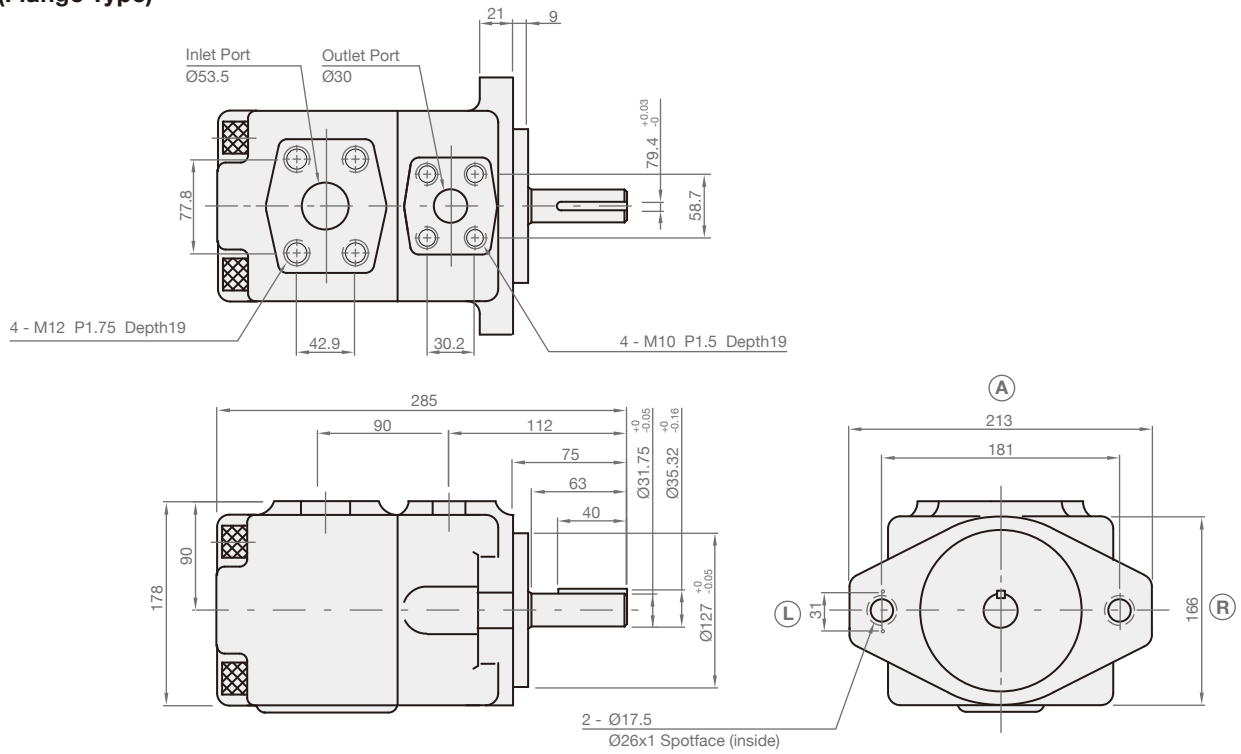
1
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1	▶ <b>Model Name</b>	<b>PV2R3</b>	
2	▶ <b>Delivery at 1000 r.p.m.</b>	<b>60, 66, 76, 94, 116, 125</b>	
3	▶ <b>Mounting</b>	<b>F</b>	flange type
		<b>L</b>	foot type
4	▶ <b>Direction of Revolving</b> (Side View of Self Aligning Bearing)	<b>R</b>	clockwise direction
		<b>L</b>	counter clockwise direction

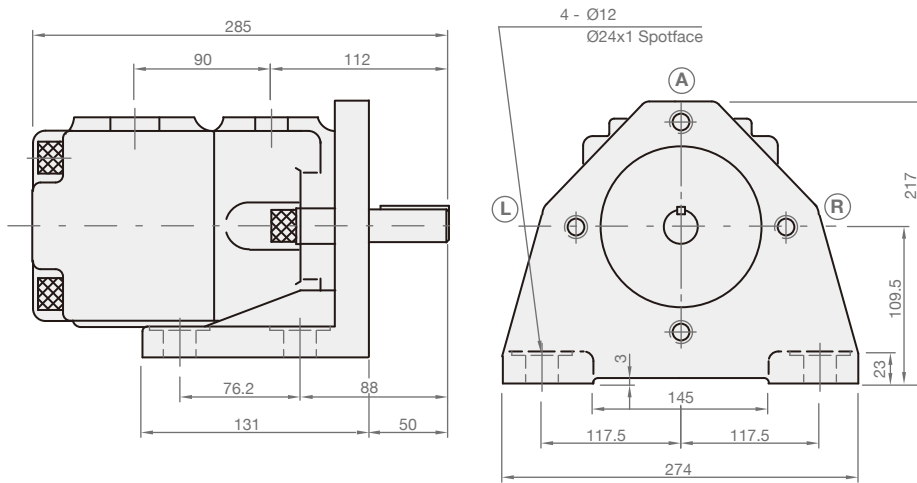
## MODEL SPEC.

Model	Delivery Capacity (cc/rev)				Operating Pressure (kgf/cm <sup>2</sup> )		Speed (r.p.m.)		Ports Size (PT)		Weight (kg)	
	Speed (r.p.m.)											
	1000	1200	1500	1800	Max.	Rated	Min.	Max.	Inlet	Outlet	Foot Type	Flange Type
PV2R3-60	60	72	90	108	210	175	950	1500	2"	1 1/4"	46.7	36.7
PV2R3-66	66	79.2	99	118.8								
PV2R3-76	76.4	91.5	114.4	137.2								
PV2R3-94	93.8	113.5	141.6	169.8								
PV2R3-116	115.6	139.2	174.0	208.8	175	160	950	1200	2"	1 1/4"	46.7	36.7
PV2R3-125	125	150	187.5	-								

► PV2R3 (Flange Type)



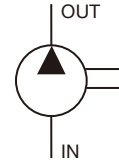
► PV2R3 (Foot Type)



# PV2R4



## SYMBOLS



## ORDER CODES

**PV2R4** - **136** - **L** - **R**

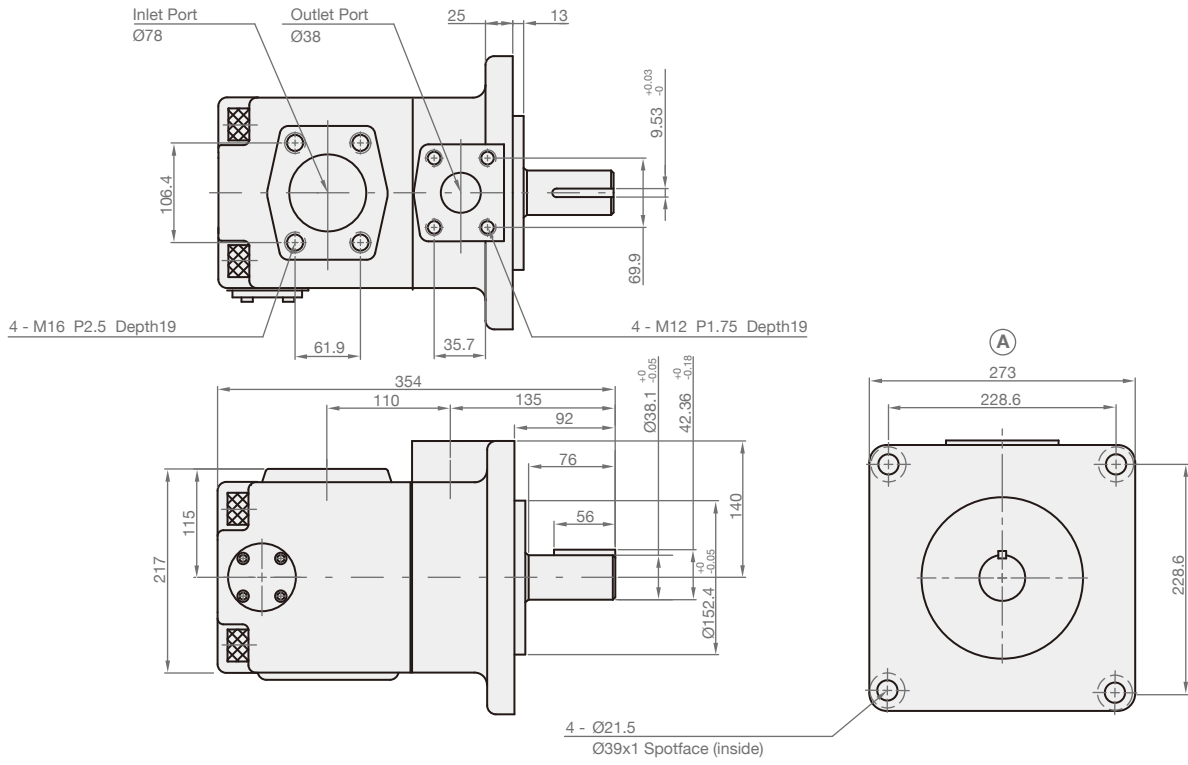
1
2
3
4

1	▶ <b>Model Name</b>	PV2R1	
2	▶ <b>Delivery at 1000 r.p.m.</b>	136, 153, 184, 200, 237, 250	
3	▶ <b>Mounting</b>	F	flange type
		L	foot type
4	▶ <b>Direction of Revolving</b> (Side View of Self Aligning Bearing)	R	clockwise direction
		L	counter clockwise direction

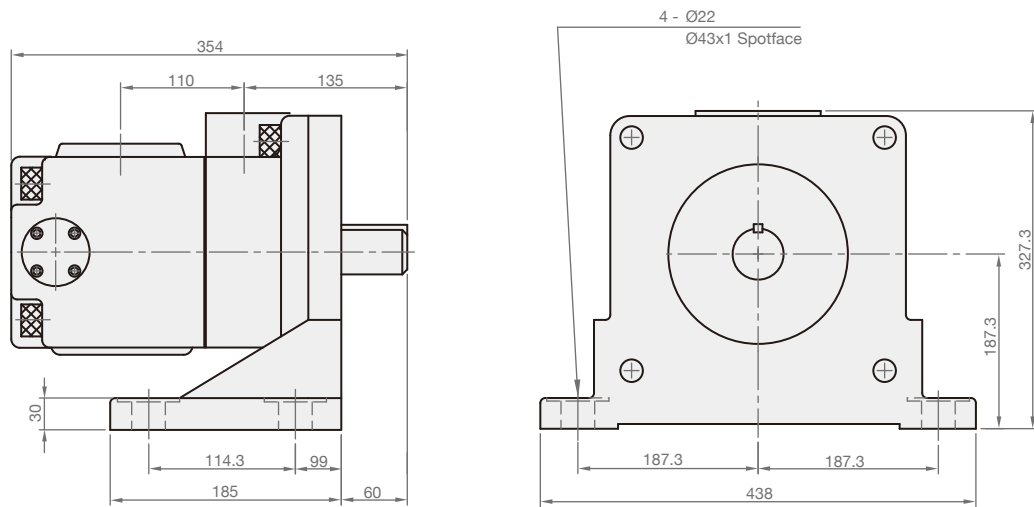
## MODEL SPEC.

Model	Delivery Capacity (cc/rev)				Operating Pressure (kgf/cm <sup>2</sup> )		Speed (r.p.m.)		Ports Size (PT)		Weight (kg)	
	Speed (r.p.m.)											
	1000	1200	1500	1800	Max.	Rated	Min.	Max.	Inlet	Outlet	Foot Type	Flange Type
PV2R4-136	136	163.2	204	244.8	175	143	950	1800	3"	1 1/2"	93.5	68.5
PV2R4-153	153	183.6	229.5	275.4								
PV2R4-184	184	220.8	276	331.2								
PV2R4-200	200	240	300	360	175	143	950	1200	3"	1 1/2"	93.5	68.5
PV2R4-237	237	284.4	355.5	426.6								
PV2R4-250	250	300	375	450								

► PV2R4 (Flange Type)



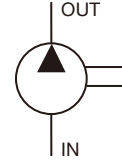
► PV2R4 (Foot Type)



# DS



## SYMBOLS



## ORDER CODES

**DS** - **12** - **L** - **R**

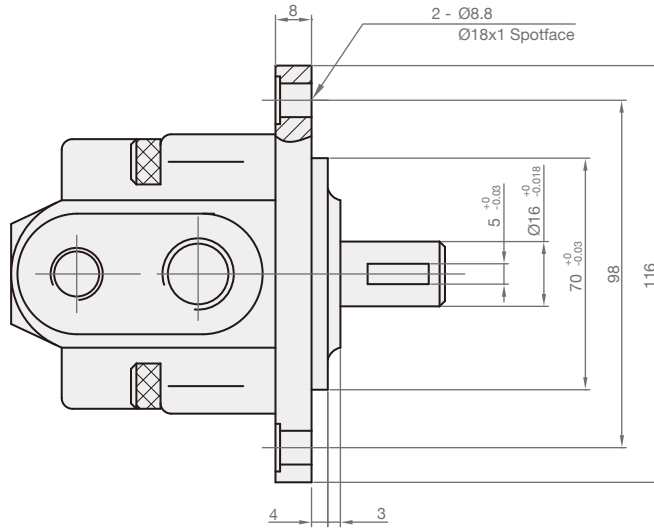
①                      ②                      ③                      ④

① ▶	<b>Model Name</b>	DS	
② ▶	<b>Interior Structure and Dimension</b>	11, 12, 13, 14	
③ ▶	<b>Mounting</b>	F	flange type
		L	foot type
④ ▶	<b>Direction of Revolving (Side View of Self Aligning Bearing)</b>	R	clockwise direction
		L	counter clockwise direction

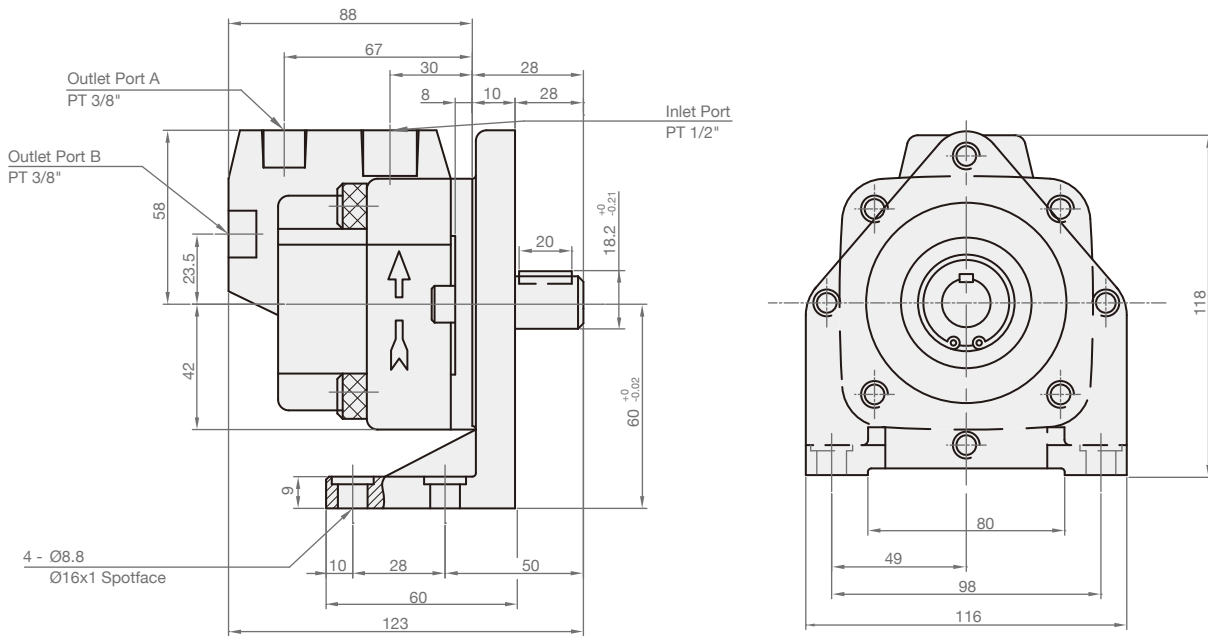
## MODEL SPEC.

Model	Max. Pressure (kgf/cm <sup>2</sup> )	Operating characteristics at 1800 r.p.m. with 20 cSt fluid						Speed (r.p.m.)		Ports Size (PT)		Weight (kg)	
		Delivery (l/min)			Input (kW)			Min.	Max.	Inlet	Outlet	Foot Type	Flange Type
		5 (kgf/cm <sup>2</sup> )	35 (kgf/cm <sup>2</sup> )	70 (kgf/cm <sup>2</sup> )	5 (kgf/cm <sup>2</sup> )	35 (kgf/cm <sup>2</sup> )	70 (kgf/cm <sup>2</sup> )						
DS-11	70	5.0	4.5	3.9	0.2	0.55	1.0	900	1800	1/2"	3/8"	4.5	3
DS-12	70	7.7	7.2	6.5	0.3	0.75	1.5						
DS-13	70	12.6	11.8	11.0	0.4	1.05	2.1						
DS-14	70	22.1	21.8	21.0	0.6	1.65	3.4						

► DS (Flange Type)



► DS (Foot Type)



\* Standard type : the outlet A is plugged.

# HVP-FAI



## SYMBOLS



## ORDER CODES

**HVP-FAI** - **L** - **11** - **R**

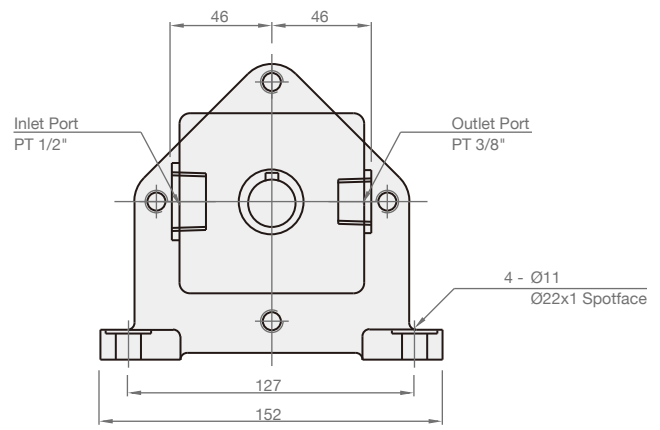
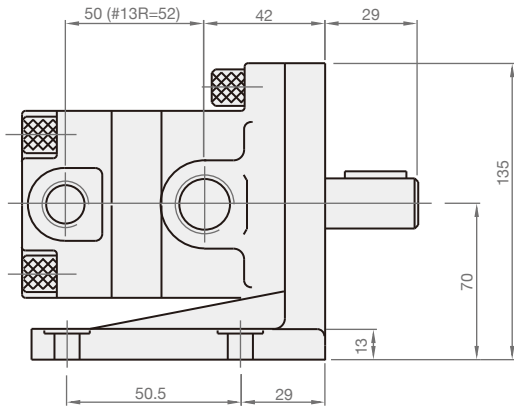
1                      2                      3                      4

1	▶ <b>Model Name</b>	<b>HVP-FAI</b>	
2	▶ <b>Mounting</b>	<b>F</b>	flange type
		<b>L</b>	foot type
3	▶ <b>Delivery Capacity</b>	<b>5, 8, 11, 13</b>	
4	▶ <b>Direction of Revolving</b> (Side View of Self Aligning Bearing)	<b>R</b>	clockwise direction
		<b>L</b>	counter clockwise direction

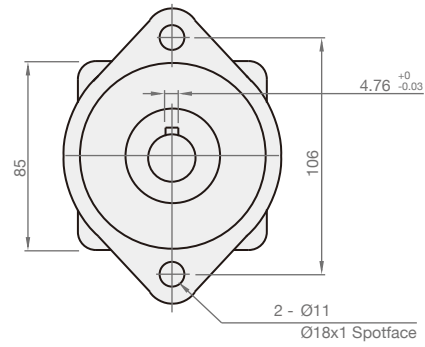
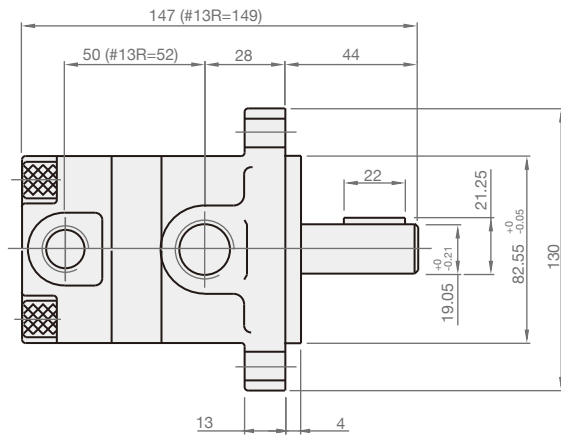
## MODEL SPEC.

Model	Max. Pressure (kgf/cm <sup>2</sup> )	Operating characteristics at 1800 r.p.m. with 20 cSt fluid						Speed (r.p.m.)		Ports Size (PT)		Weight (kg)	
		Delivery (l/min)			Input (kW)			Min.	Max.	Inlet	Outlet	Foot Type	Flange Type
		5 (kgf/cm <sup>2</sup> )	35 (kgf/cm <sup>2</sup> )	70 (kgf/cm <sup>2</sup> )	5 (kgf/cm <sup>2</sup> )	35 (kgf/cm <sup>2</sup> )	70 (kgf/cm <sup>2</sup> )						
HVP-FAI-L5R	70	5.1	4.6	3.7	0.1	0.5	1.0	900	1800	1/2"	3/8"	6.5	5.6
HVP-FAI-L8R	70	9.7	8.9	7.7	0.1	0.8	1.5						
HVP-FAI-L11R	70	13.8	12.8	11.7	0.2	1.0	2.1						
HVP-FAI-L13R	70	14.9	13.8	12.8	0.2	1.3	2.5						

► HVP-FAI (Foot Type)



► HVP-FAI (Flange Type)



# Steed Machinery Co., Ltd.

No. 28, Ruiguang St., South Dist.,  
Taichung City 402006,  
Taiwan  
Tel : +886-4-2285-4867  
Fax : +886-4-2285-2848  
Email : info@steedmachinery.com.tw

more information  
[www.steedmachinery.com.tw](http://www.steedmachinery.com.tw)

