

Pump

- Variable Displacement Vane Pump
- Fixed Displacement Vane Pump
- Variable Displacement Piston Pump
- Chemical Pump



Operation Note

..... 05

Variable Displacement Vane Pump

VHO 06
VHI 08
VHI+S (HGP) 10
VHP+S (HGP) 12
VHOD 16
VHID 18
VHP 20
VHPD 22

Fixed Displacement Vane Pump

50T 24
150T 26
PV2R1 28
PV2R2 30
PV2R3 32
PV2R4 34
VQ15 36
DS 38
HVP-FAI 40

Variable Displacement Piston Pump

VPS 42

Chemical Pump (PU)

GH1 44
GH2 46
GH4 48

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 operational viscosity of fluid

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

3. Ideal operational temperature of fluid

The temperature of operational 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 kgf/cm^2 (0.03Mpa).

6. Coupling

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

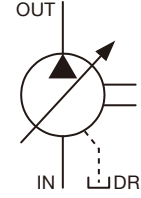
7. Rotation

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

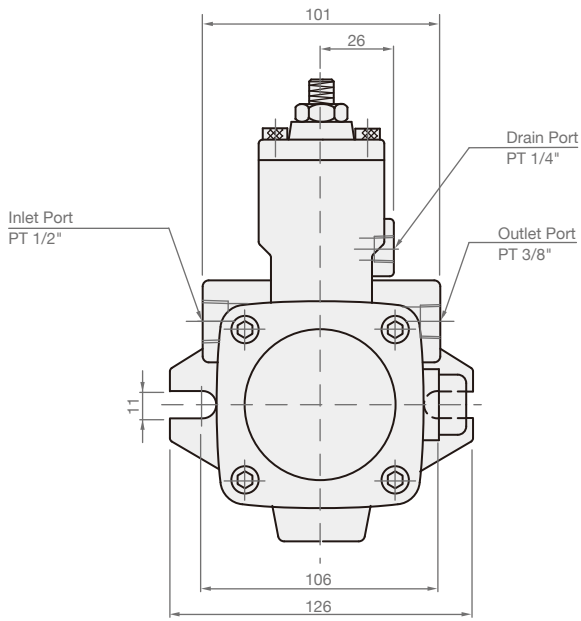
① ② ③ ④ ⑤

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 ²
		A2	35~70 kgf/cm ²
⑤	▶ Design Number	B5	ø15.875
		T9	spline shaft

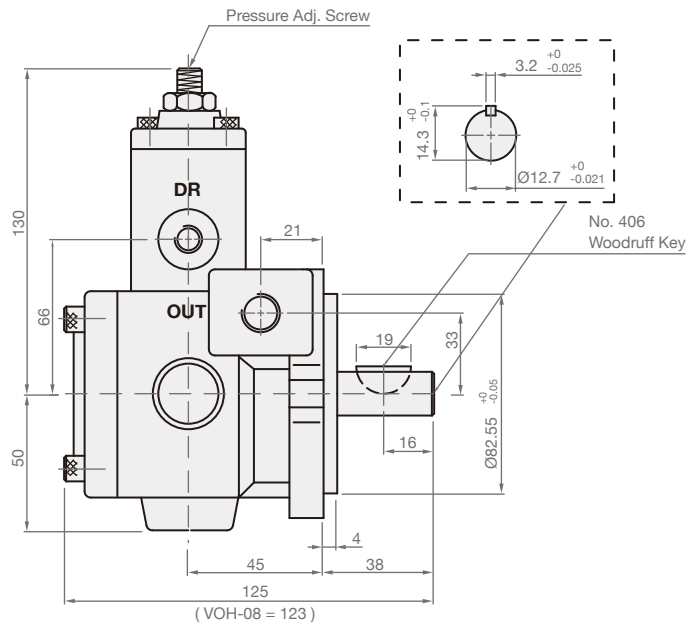
MODEL SPEC.

Model	Max. Pressure (kgf/cm ²)	Delivery at 3.5 kgf/cm ² , 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**

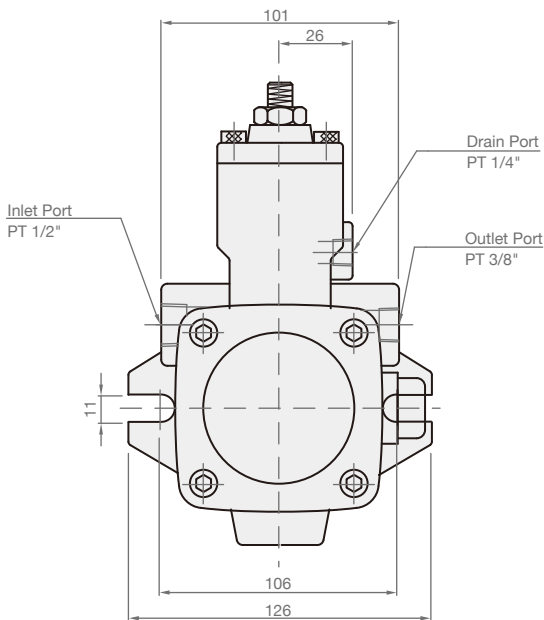


* Note : without flow adjustment screw

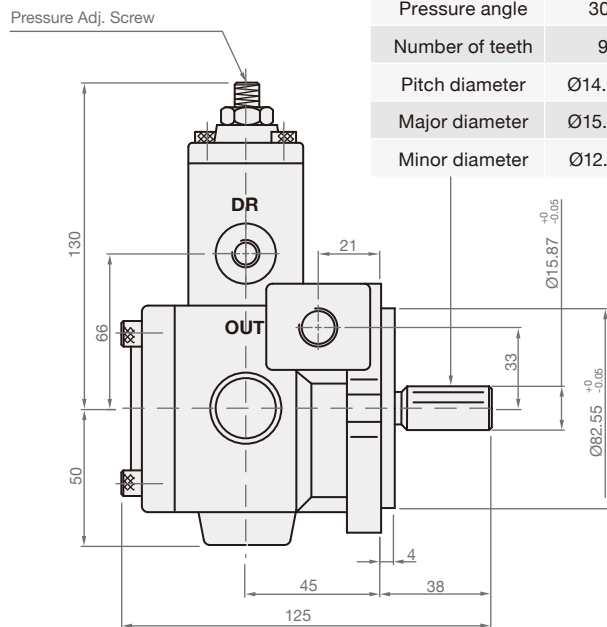


* The shaft has Ø15.88 & keyway 4mm type option

► **VHO-12, 15, 20, 25 (Spline Shaft)**



* Note : without flow adjustment screw

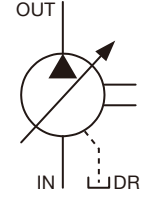


ANSI B92.1 Standard	
Module	DP16/32
Pressure angle	30°
Number of teeth	9
Pitch diameter	Ø14.292
Major diameter	Ø15.875
Minor diameter	Ø12.155

VHI



SYMBOLS



ORDER CODES

VHI - F - 30 - A2 - T9

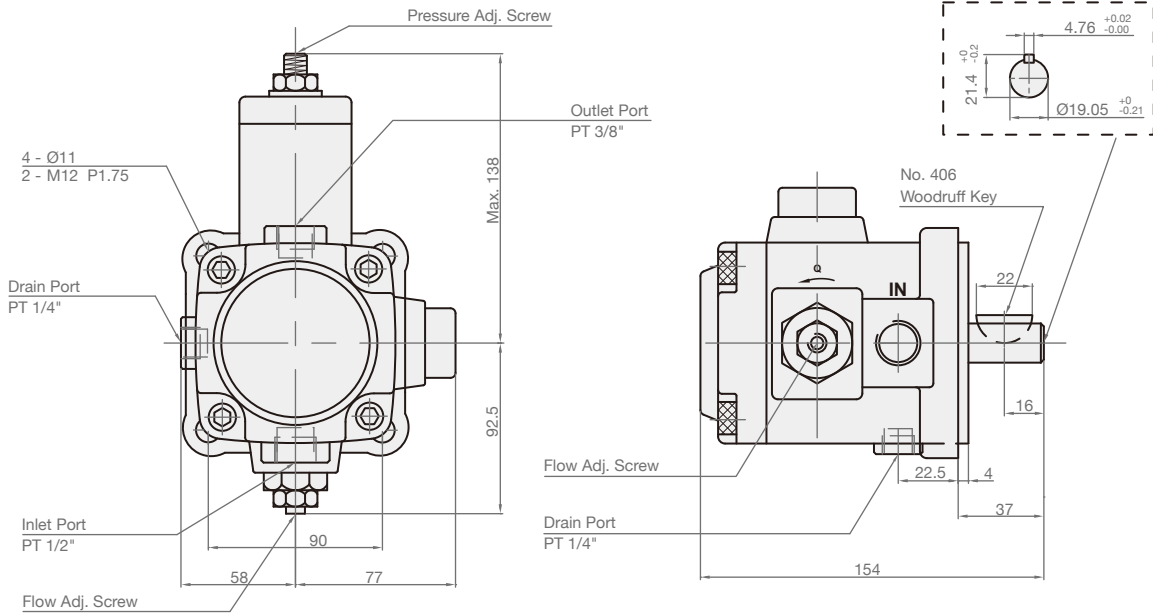
① ② ③ ④ ⑤

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	15~35 kgf/cm ²
		A2	35~70 kgf/cm ²
⑤	Design Number	T9	spline shaft
		none	straight shaft

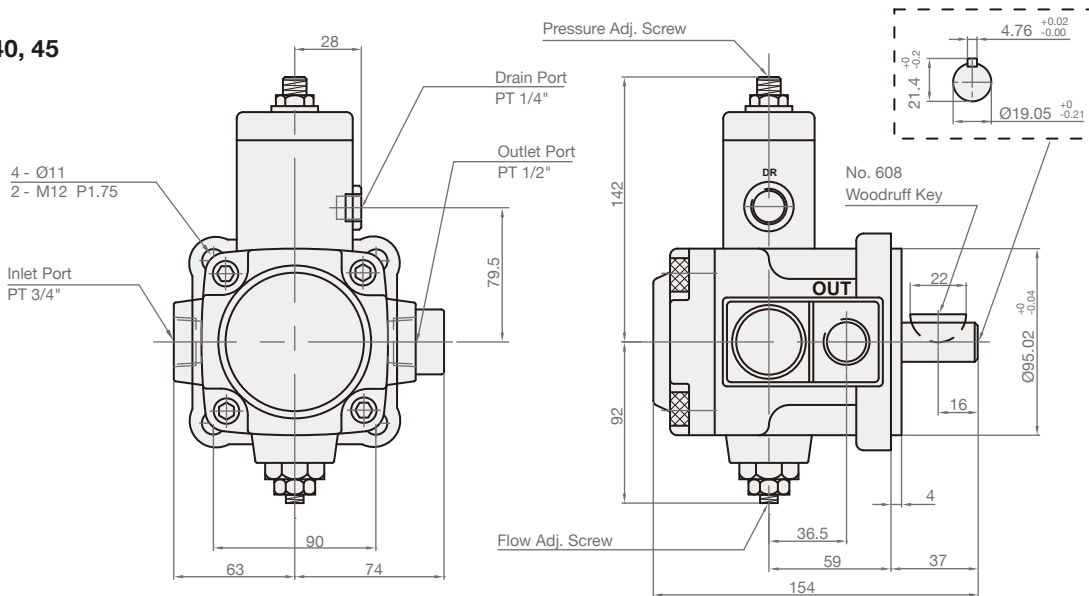
MODEL SPEC.

Model	Max. Pressure (kgf/cm ²)	Delivery at 3.5 kgf/cm ² , 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"		

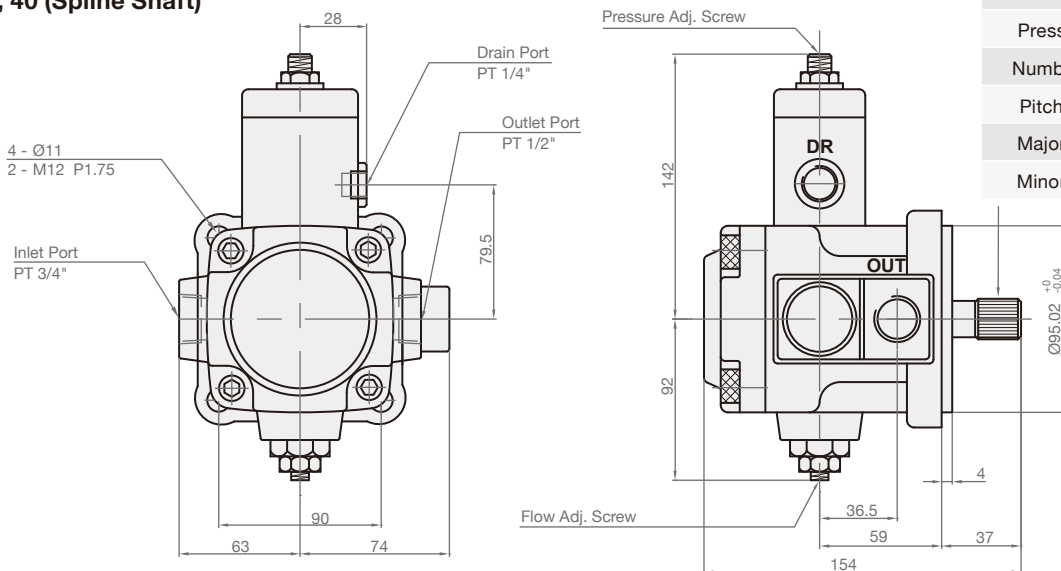
► VHI-F-26



► VHI-F-30, 40, 45



► VHI-F-30, 40 (Spine Shaft)

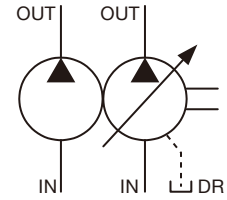


ANSI B92.1 Standard

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	Model Name	VHI	
②	Mounting	F	flange type
		L	foot type
③	Delivery at 1800 r.p.m.	26, 30, 40, 45	
		HGP-1A	2B, 4BD, 4BE
		HGP-2A	4BJ
④	Pressure Adj. Range	A1	15~35 kgf/cm ²
		A2	35~70 kgf/cm ²
⑤	Design Number	T9	spline shaft
		none	straight shaft

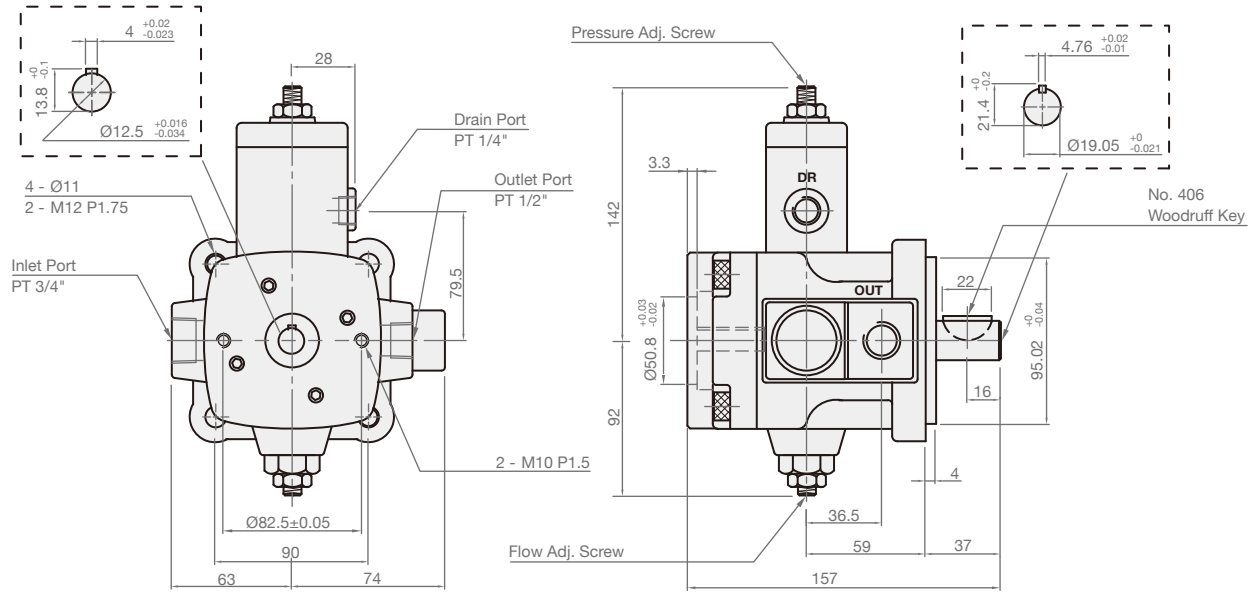


MODEL SPEC.

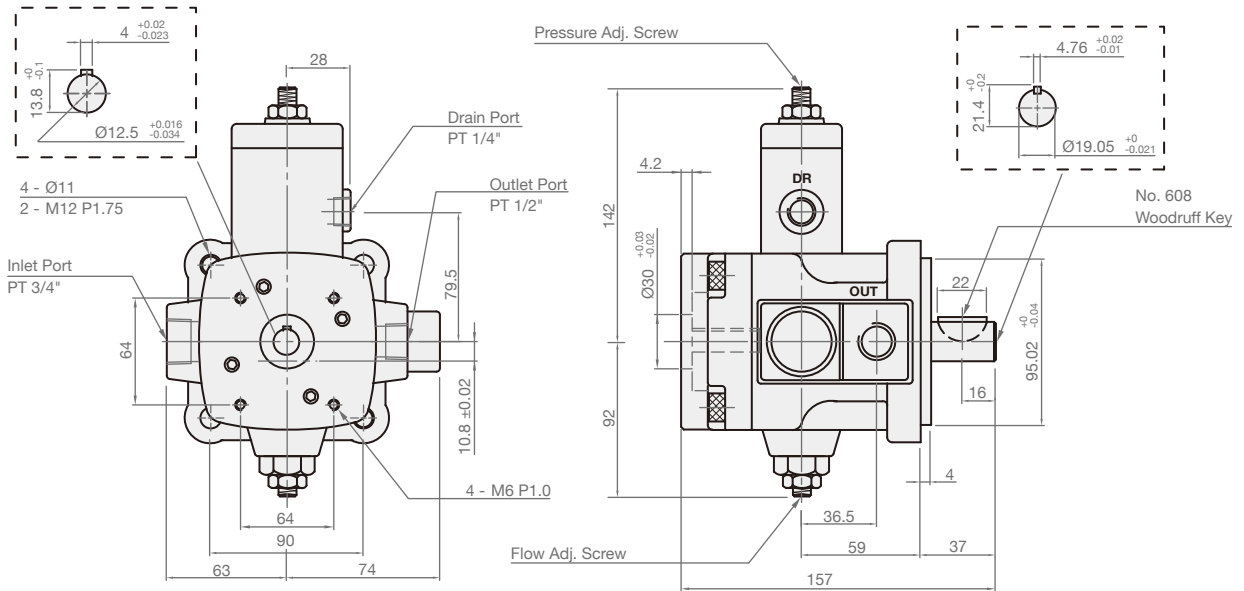
Model	Max. Pressure (kgf/cm ²)	Delivery at 3.5 kgf/cm ² , 1800 r.p.m. (l/min)	Speed (r.p.m.)		Ports Size (PT)			Weight (kg)	
			Min.	Max.	Outlet	Inlet	DR	Foot Type	Flange Type
VHI-26+S	70	26+S	900	1800	3/8"	1/2"	1/4"	12.4+G	9.5+G
VHI-30+S	70	30+S			1/2"	3/4"	1/4"		
VHI-40+S	70	40+S			1/2"	3/4"	1/4"	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

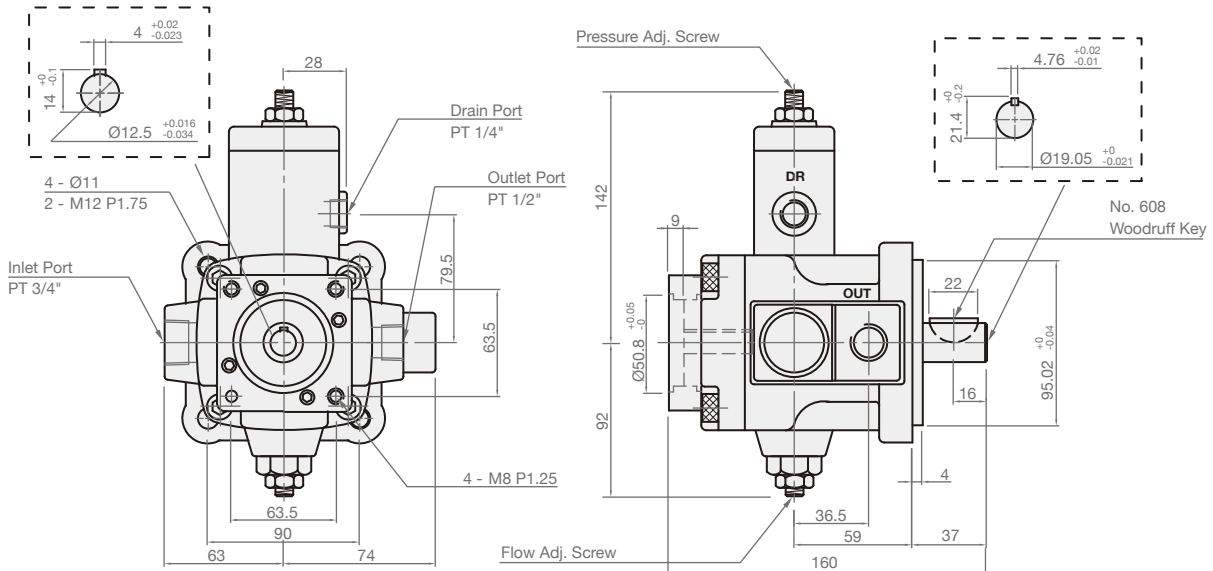
► **VHI-26, 30, 40, 45 + HGP-1A (2B)**



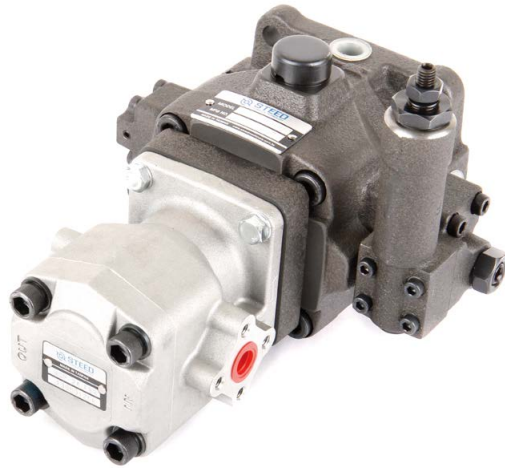
► **VHI-26, 30, 40, 45 + HGP-1A (4BE)**



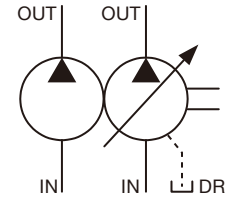
► **VHI-30, 40, 45 + HGP-2A (4BJ)**



VHP+S (HGP)



SYMBOLS



ORDER CODES

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

① ② ③ ④ ⑤

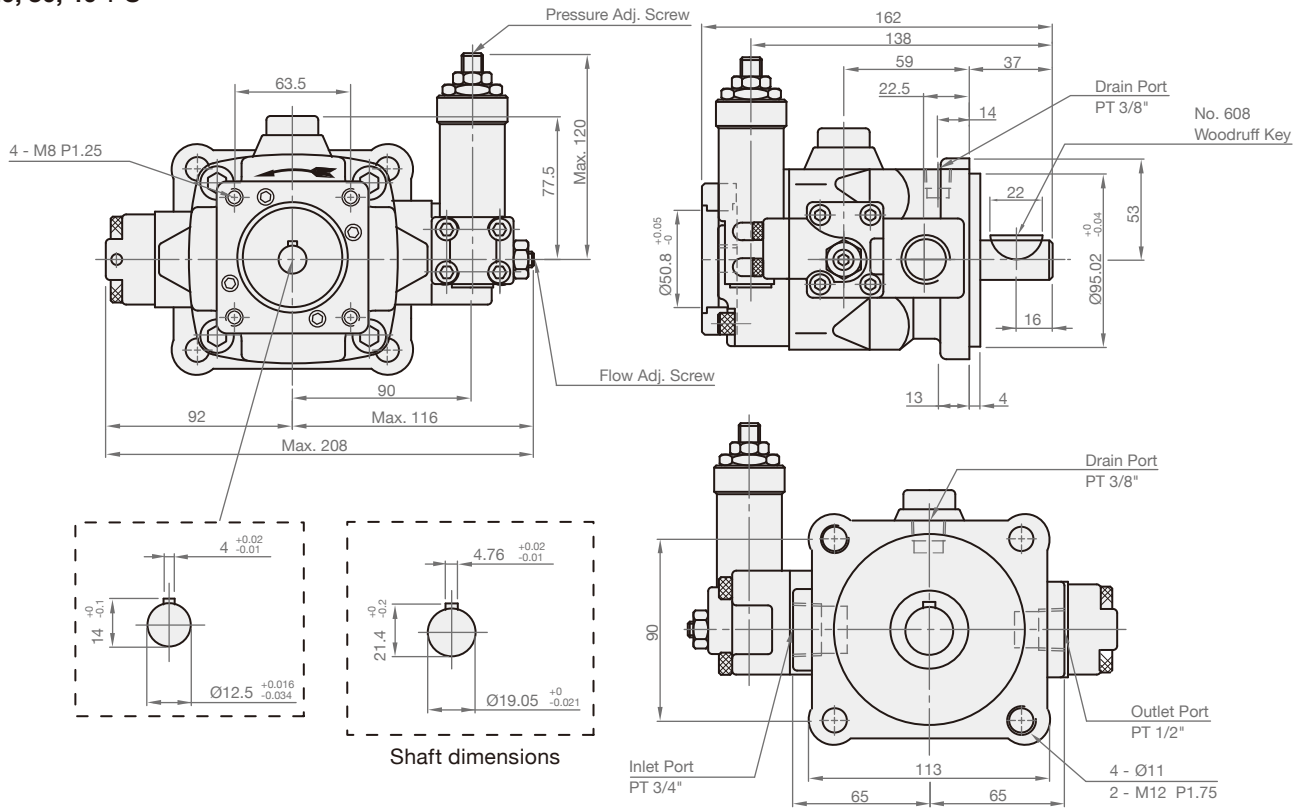
① ▶ Model Name	VHP	
② ▶ Mounting	F	flange type
	L	foot type
③ ▶ Delivery at 1800 r.p.m.	20, 26, 30, 40, 54, 70, 86	
	HGP-1A	2B, 4BD, 4BE
	HGP-2A	4BJ
④ ▶ Pressure Adj. Range	A1	15~35 kgf/cm ²
	A2	35~70 kgf/cm ²
	A3	70~105 kgf/cm ²
	A4	105~140 kgf/cm ²
⑤ ▶ Design Number	T9	spline shaft
	none	straight shaft

MODEL SPEC.

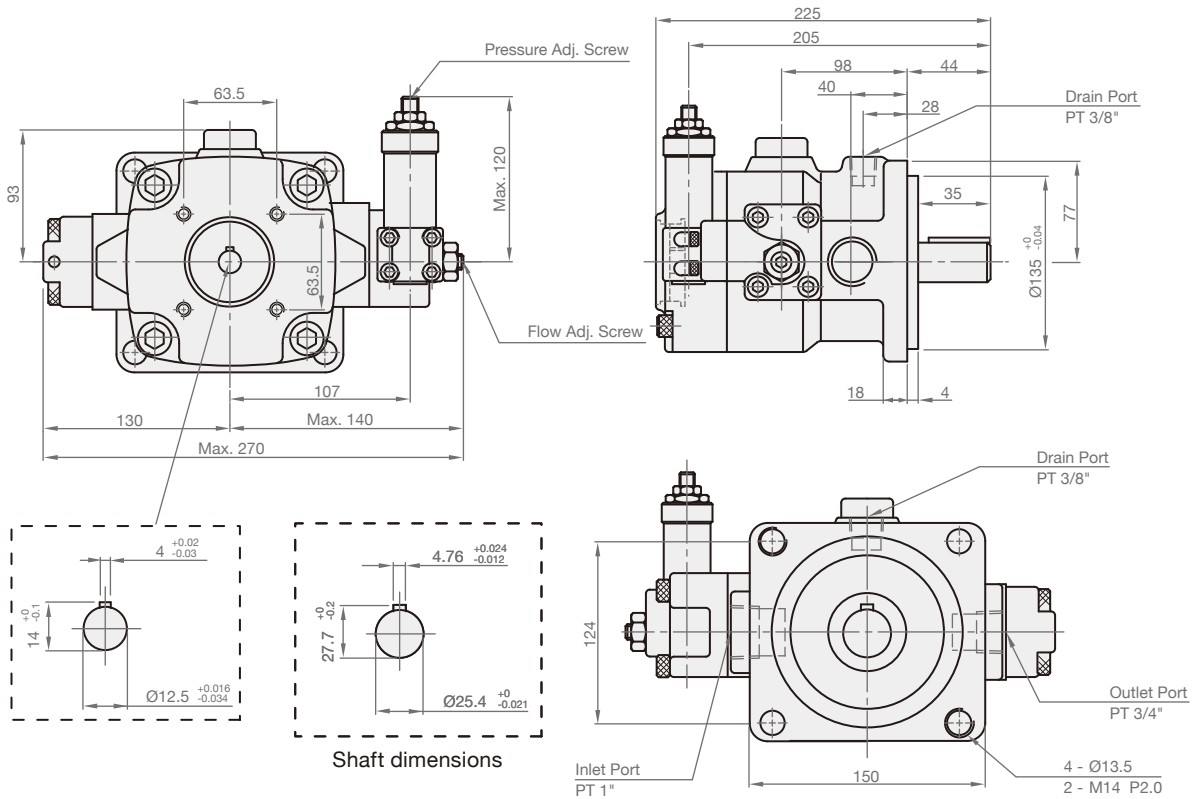
Model	Max. Pressure (kgf/cm ²)	Delivery at 3.5 kgf/cm ² , 1800 r.p.m. (l/min)	Speed (r.p.m.)		Ports Size (PT)			Weight (kg)	
			Min.	Max.	Outlet	Inlet	DR	Foot Type	Flange Type
VHP-20+S	140	20+S	900	1800	1/2"	3/4"	3/8"	13.2+G	10.2+G
VHP-26+S	140	26+S			1/2"	3/4"	3/8"		
VHP-30+S	140	30+S			1/2"	3/4"	3/8"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



ADDITIONAL INFO.

► HGP-1A series

Model	(S) Accurate Displacement Capacity (cc/rev)	Operational Pressure (kgf/cm ²)	Max. Pressure (kgf/cm ²)	Speed (r.p.m.)			(G) Weight (kg)
				Rate	Max.	Min.	
HGP-1A-05	0.5	210	250	1800	4500	1000	1.0
HGP-1A-08	0.8	210	250	1800	4500	1000	1.0
HGP-1A-1	1	210	250	1800	4500	1000	1.0
HGP-1A-2	2	210	250	1800	4500	600	1.05
HGP-1A-26	2.6	210	250	1800	4500	600	1.15
HGP-1A-3	3	210	250	1800	4500	600	1.15
HGP-1A-4	4	210	250	1800	4000	600	1.18
HGP-1A-5	5	210	250	1800	3200	600	1.2
HGP-1A-6	6	210	250	1800	3200	600	1.3
HGP-1A-8	7.8	170	210	1800	3200	600	1.4

* HGP-1A-05 and HGP-1A-26 do not belong to regular products. Customized service can be provided.

► HGP-2A series

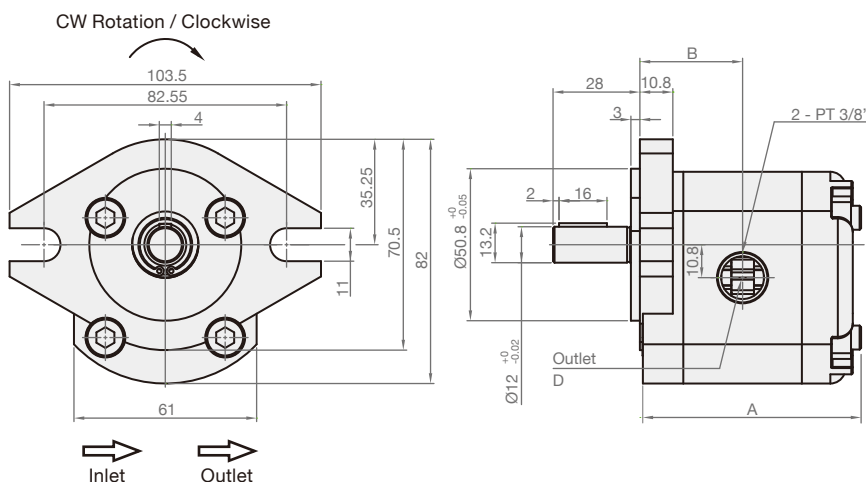
Model	(S) Accurate Displacement Capacity (cc/rev)	Operational Pressure (kgf/cm ²)	Max. Pressure (kgf/cm ²)	Speed (r.p.m.)			(G) Weight (kg)
				Rate	Max.	Min.	
HGP-2A-2	2	210	250	1800	5000	1000	1.69
HGP-2A-25	2.5	210	250	1800	5000	850	1.70
HGP-2A-3	3	210	250	1800	5000	850	1.70
HGP-2A-4	4	210	250	1800	4500	800	1.71
HGP-2A-5	5	210	250	1800	3500	700	1.71
HGP-2A-6	6	210	250	1800	3500	700	1.72
HGP-2A-8	7.5	210	250	1800	3000	600	1.74
HGP-2A-9	9	210	250	1800	2500	550	1.74
HGP-2A-11	10.5	210	250	1800	2000	500	1.74
HGP-2A-12	12	175	210	1800	2000	500	1.76

* HGP-2A-25 and HGP-2A-5 do not belong to regular products. Customized service can be provided.

DIMENSION

(UNIT : mm)

► HGP-1A-2B (SAE 2-bolt)

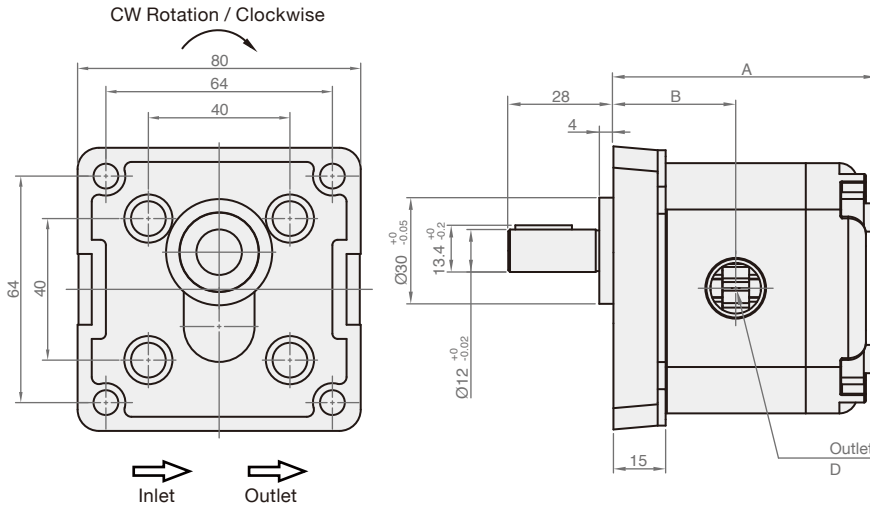


Model	A	B	C Inlet	D Outlet
HGP-1A-08	67.5	32.5	PT 3/8"	PT 3/8"
HGP-1A-1	69.5	33.5	PT 3/8"	PT 3/8"
HGP-1A-2	72	34.8	PT 3/8"	PT 3/8"
HGP-1A-3	77.5	37.5	PT 3/8"	PT 3/8"
HGP-1A-4	79.5	38.5	PT 3/8"	PT 3/8"
HGP-1A-5	83.5	40.5	PT 3/8"	PT 3/8"
HGP-1A-6	87.5	42.5	PT 3/8"	PT 3/8"
HGP-1A-8	93.5	45.5	PT 1/2"	PT 3/8"

* Thread: NPT or PT is optional.

* If you want to order HGP-1A-05 or HGP-1A-26, please email us to get further information.

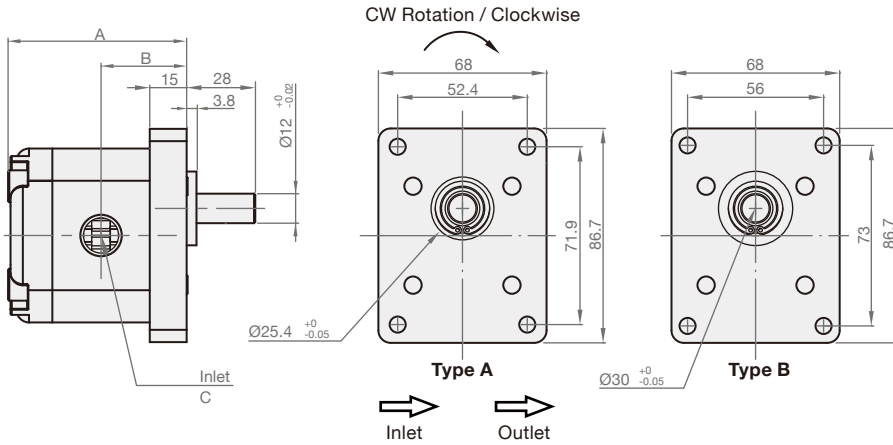
► HGP-1A-4BE (European 4-bolt)



Model	A	B	C Inlet	D Outlet
HGP-1A-08	75.5	32.5	PT 3/8"	PT 3/8"
HGP-1A-1	77.5	33.5	PT 3/8"	PT 3/8"
HGP-1A-2	80.1	34.8	PT 3/8"	PT 3/8"
HGP-1A-3	85.5	37.5	PT 3/8"	PT 3/8"
HGP-1A-4	87.5	38.5	PT 3/8"	PT 3/8"
HGP-1A-5	91.5	40.5	PT 3/8"	PT 3/8"
HGP-1A-6	95.5	42.5	PT 3/8"	PT 3/8"
HGP-1A-8	101.5	45.5	PT 1/2"	PT 3/8"

* Thread: NPT or PT is optional.
 * If you want to order HGP-1A-05 or HGP-1A-26, please email us to get further information.

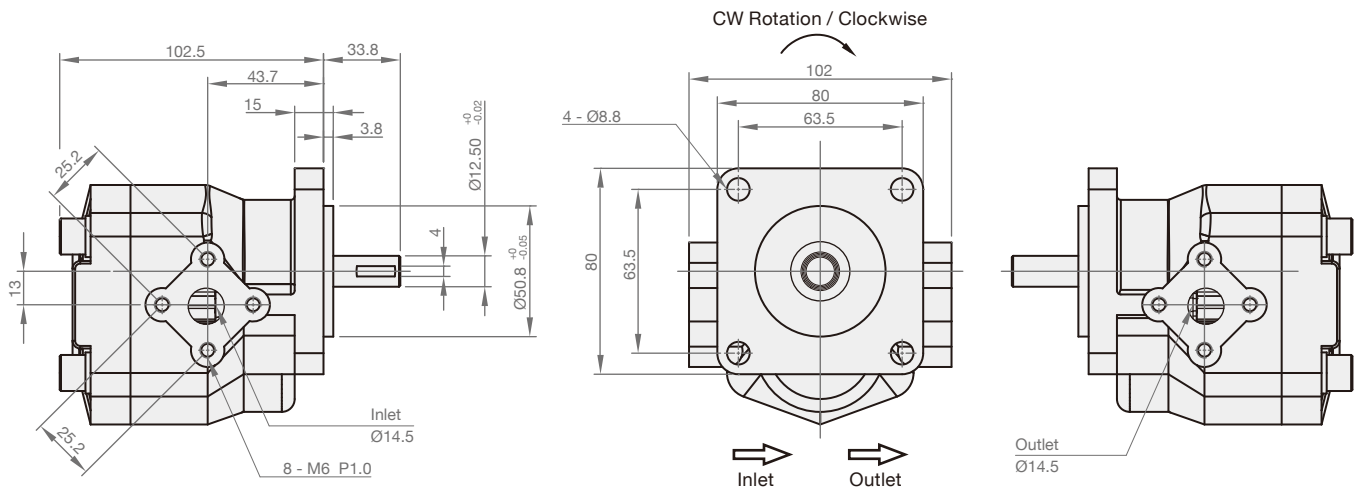
► HGP-1A-4BD (DIN 4-bolt)



Model	A	B	C Inlet	D Outlet
HGP-1A-08	67.5	32.5	PT 3/8"	PT 3/8"
HGP-1A-1	69.5	33.5	PT 3/8"	PT 3/8"
HGP-1A-2	72	34.8	PT 3/8"	PT 3/8"
HGP-1A-3	77.5	37.5	PT 3/8"	PT 3/8"
HGP-1A-4	79.5	38.5	PT 3/8"	PT 3/8"
HGP-1A-5	82.5	40.5	PT 3/8"	PT 3/8"
HGP-1A-6	87.5	42.5	PT 3/8"	PT 3/8"
HGP-1A-8	93.5	45.5	PT 1/2"	PT 3/8"

* Thread: NPT or PT is optional.
 * If you want to order HGP-1A-05 or HGP-1A-26, please email us to get further information.

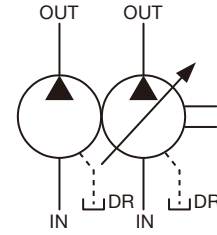
► HGP-2A-F-X-4BJ (JIS 4-bolt)



VHOD



SYMBOLS



ORDER CODES

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

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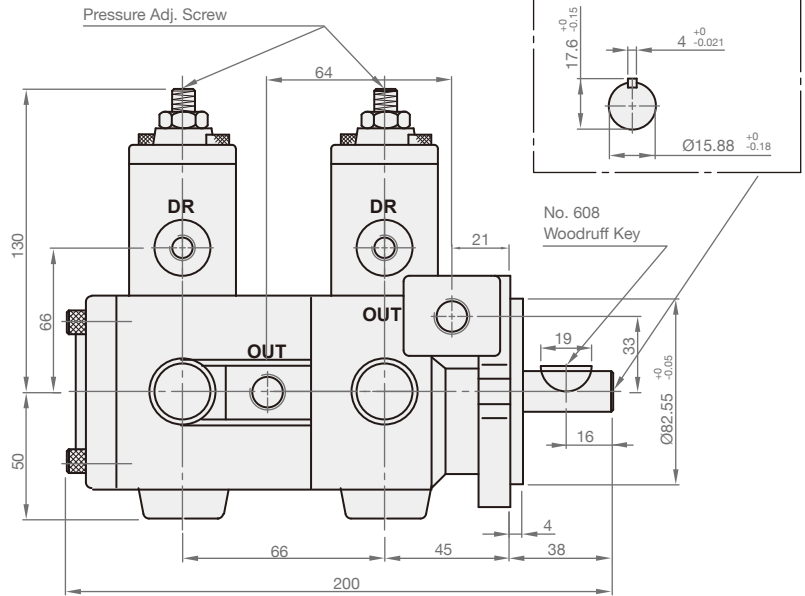
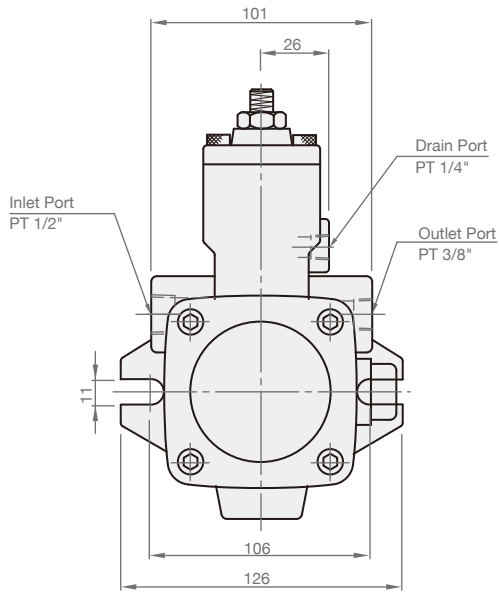
1	Model Name	VHOD	
2	Mounting	F	flange type
		L	foot type
3	Delivery at 1800 r.p.m.	1212, 1515, 2020, 2525	
4	Pressure Adj. Range	A1	8~35 kgf/cm ²
		A2	35~70 kgf/cm ²
5	Design Number	T9	spline shaft
		none	straight shaft

MODEL SPEC.

Model	Max. Pressure (kgf/cm ²)	Delivery at 3.5 kgf/cm ² , 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							

► VHOD

* The shaft has spline key option.



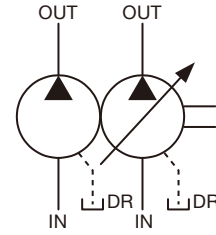
* Note : without flow adjustment screw

ANSI B92.1 Standard	
Module	DP16/32
Pressure angle	30°
Number of teeth	9
Pitch diameter	$\varnothing 14.292$
Major diameter	$\varnothing 15.875$
Minor diameter	$\varnothing 12.155$

VHID



SYMBOLS



ORDER CODES

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

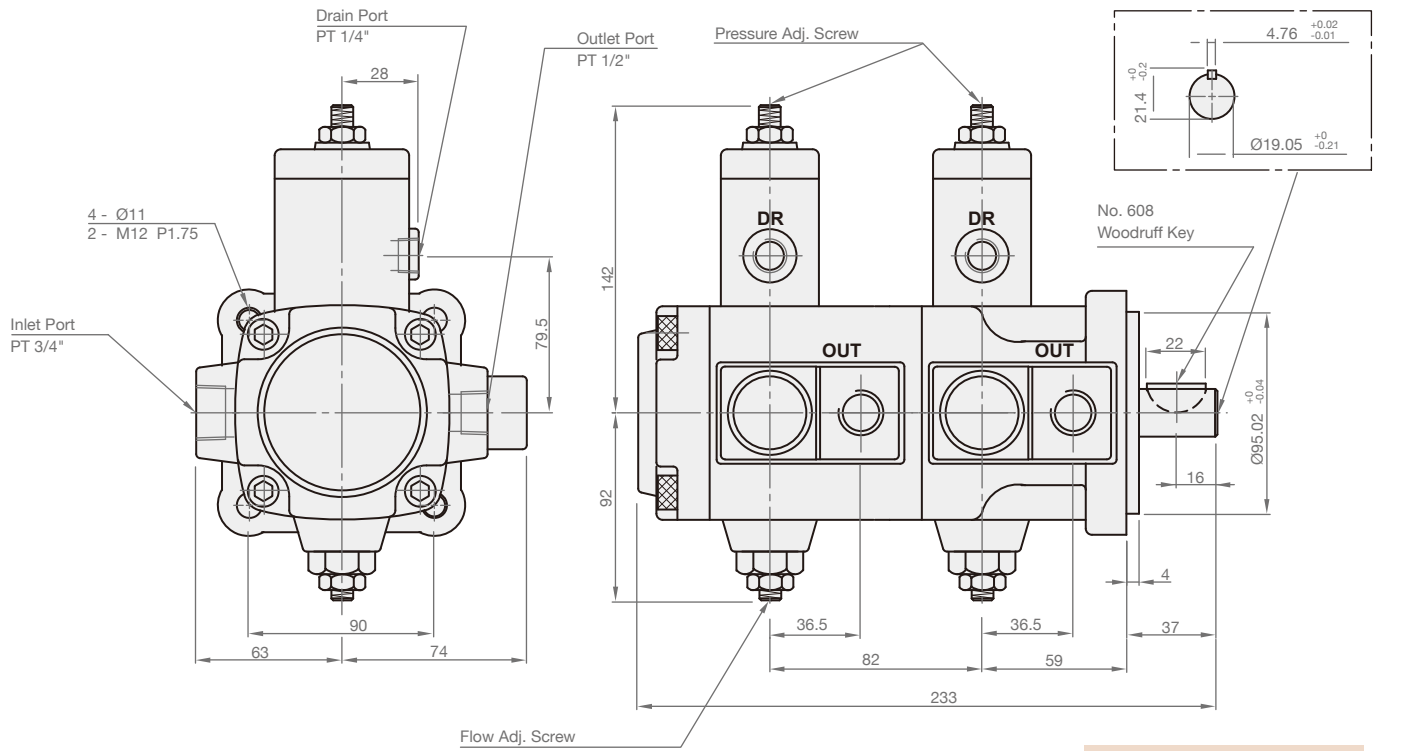
1
2
3
4
5

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	15~35 kgf/cm ²
		A2	35~70 kgf/cm ²
5	Design Number	T9	spline shaft
		none	straight shaft

MODEL SPEC.

Model	Max. Pressure (kgf/cm ²)	Delivery at 3.5 kgf/cm ² , 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



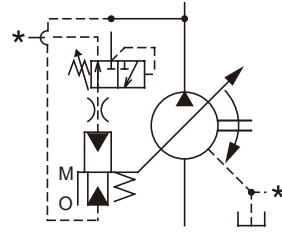
ANSI B92.1 Standard

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

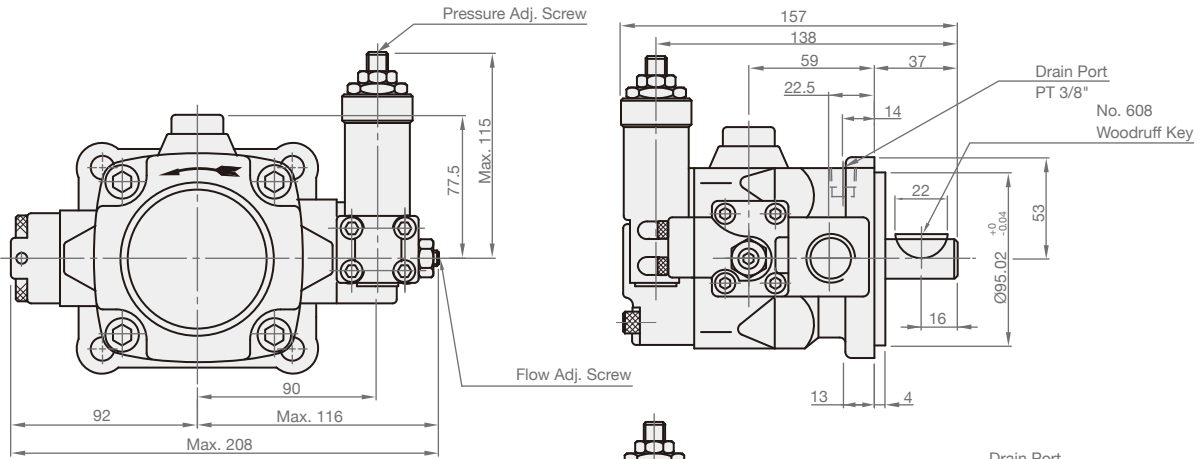
①	Model Name	VHP	
②	Mounting	F	flange type
		L	foot type
③	Delivery at 1800 r.p.m.	20, 26, 30, 40, 54, 70, 86	
④	Pressure Adj. Range	A1	8~35 kgf/cm ²
		A2	35~70 kgf/cm ²
		A3	70~105 kgf/cm ²
		A4	105~140 kgf/cm ²
⑤	Design Number	T9	spline shaft
		none	straight shaft

MODEL SPEC.

Model	Max. Pressure (kgf/cm ²)	Delivery at 3.5 kgf/cm ² , 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							

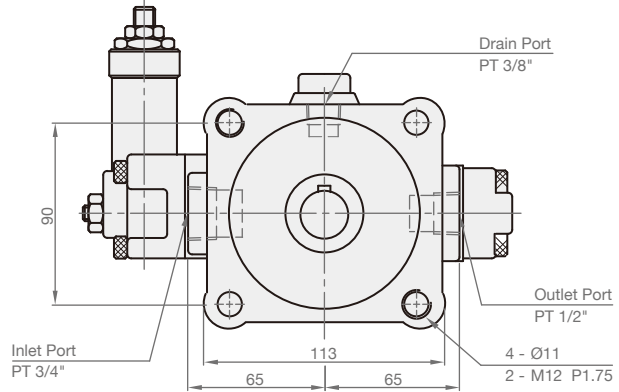
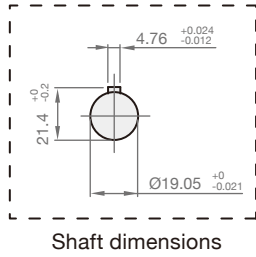
* We also supply spline key type.

► VHP-20, 26, 30, 40

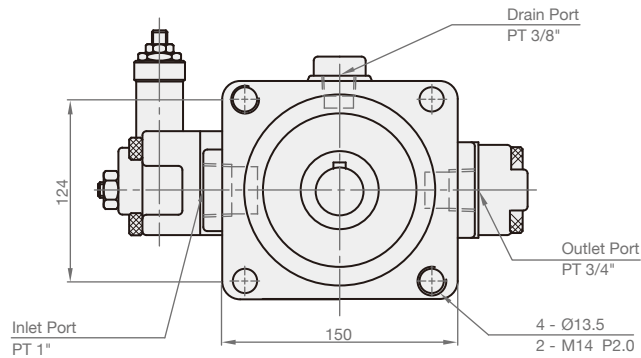
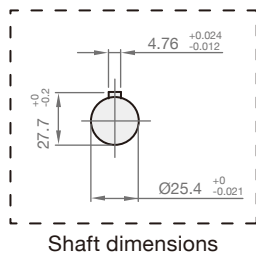
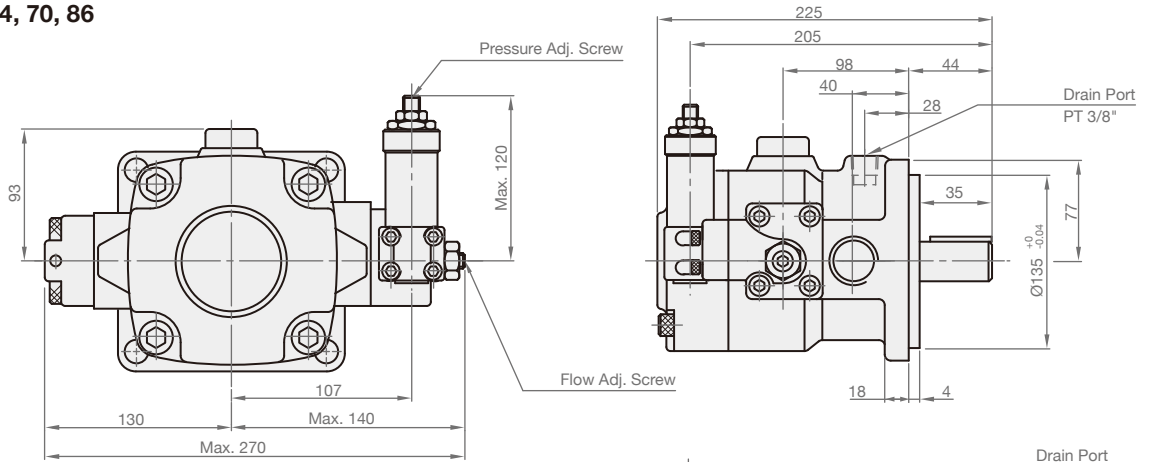


* The shaft has spline key option.

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



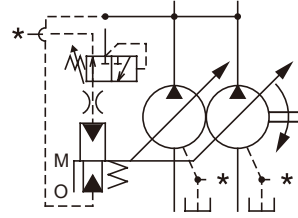
► VHP-54, 70, 86



VHPD



SYMBOLS



ORDER CODES

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

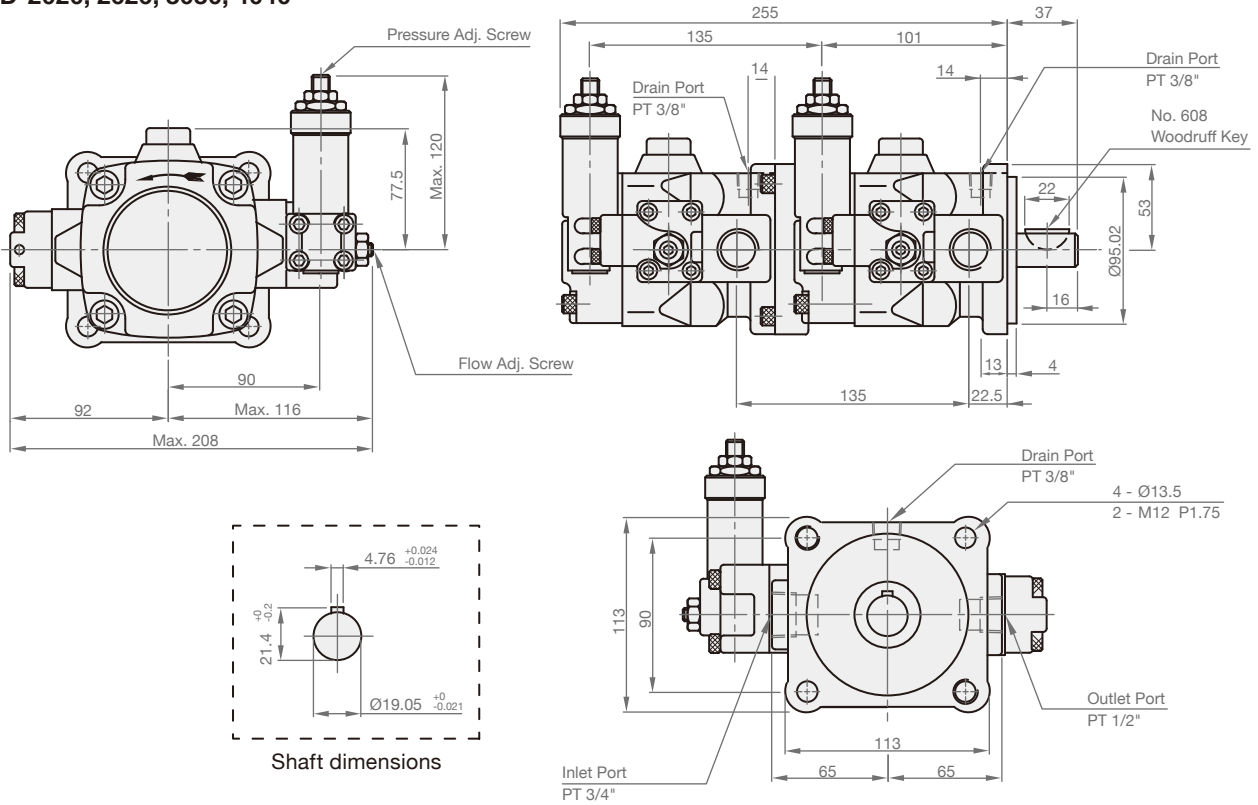
① ② ③ ④ ⑤

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 ²
		A2	35~70 kgf/cm ²
		A3	70~105 kgf/cm ²
		A4	105~140 kgf/cm ²
⑤	Design Number	T9	spline shaft
		none	straight shaft

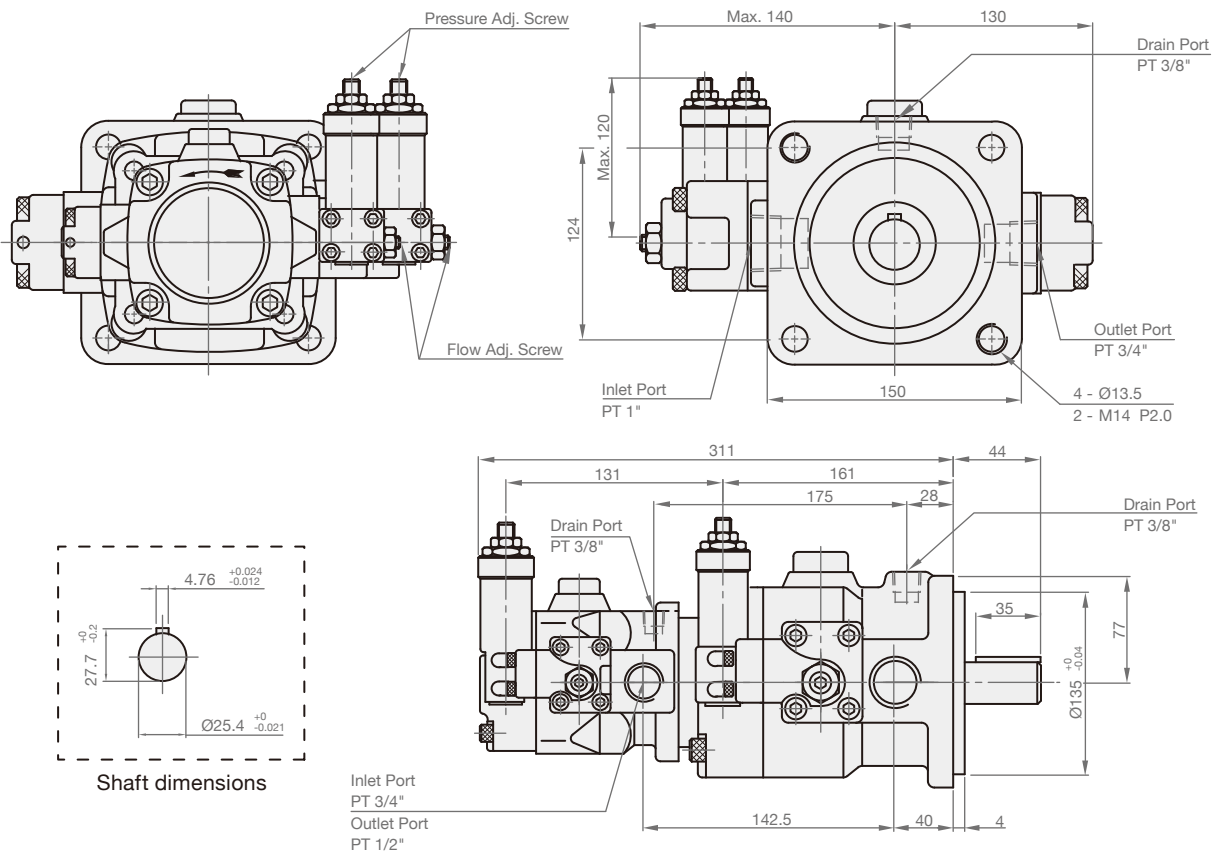
MODEL SPEC.

Model	Max. Pressure (kgf/cm ²)	Delivery at 3.5 kgf/cm ² , 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	800	1800	3/4" & 1/2"	1" & 3/4"	3/8"	49	39
VHPD-5430	105	54+30							
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



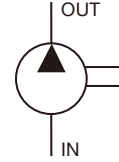
► VHPD-5430, 5440, 7030, 7040, 8630, 8640



50T



SYMBOLS



ORDER CODES

50T - **26** - **L** - **R** - **1**

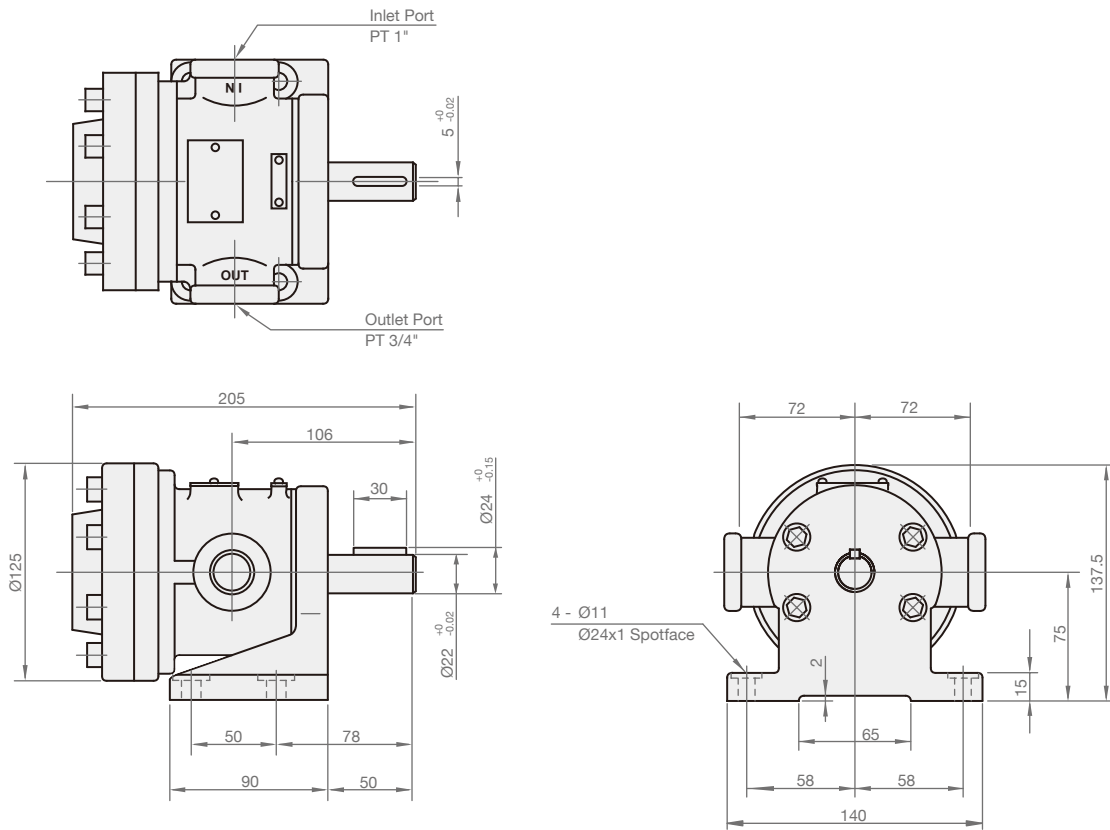
① ② ③ ④ ⑤

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

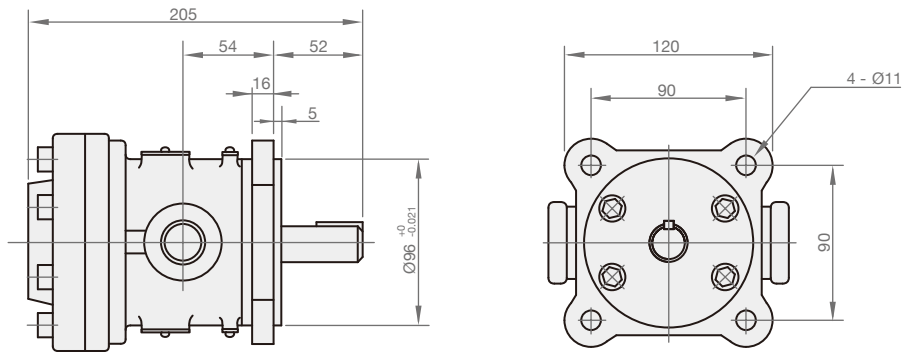
MODEL SPEC.

Model	Delivery Capacity (cc/rev)				Max. Pressure (kgf/cm ²)	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 Ø19.05mm & keyway 4.76mm & flange Ø95mm type

150T

SYMBOLS



ORDER CODES

150T - **48** - **L** - **R** - **2**

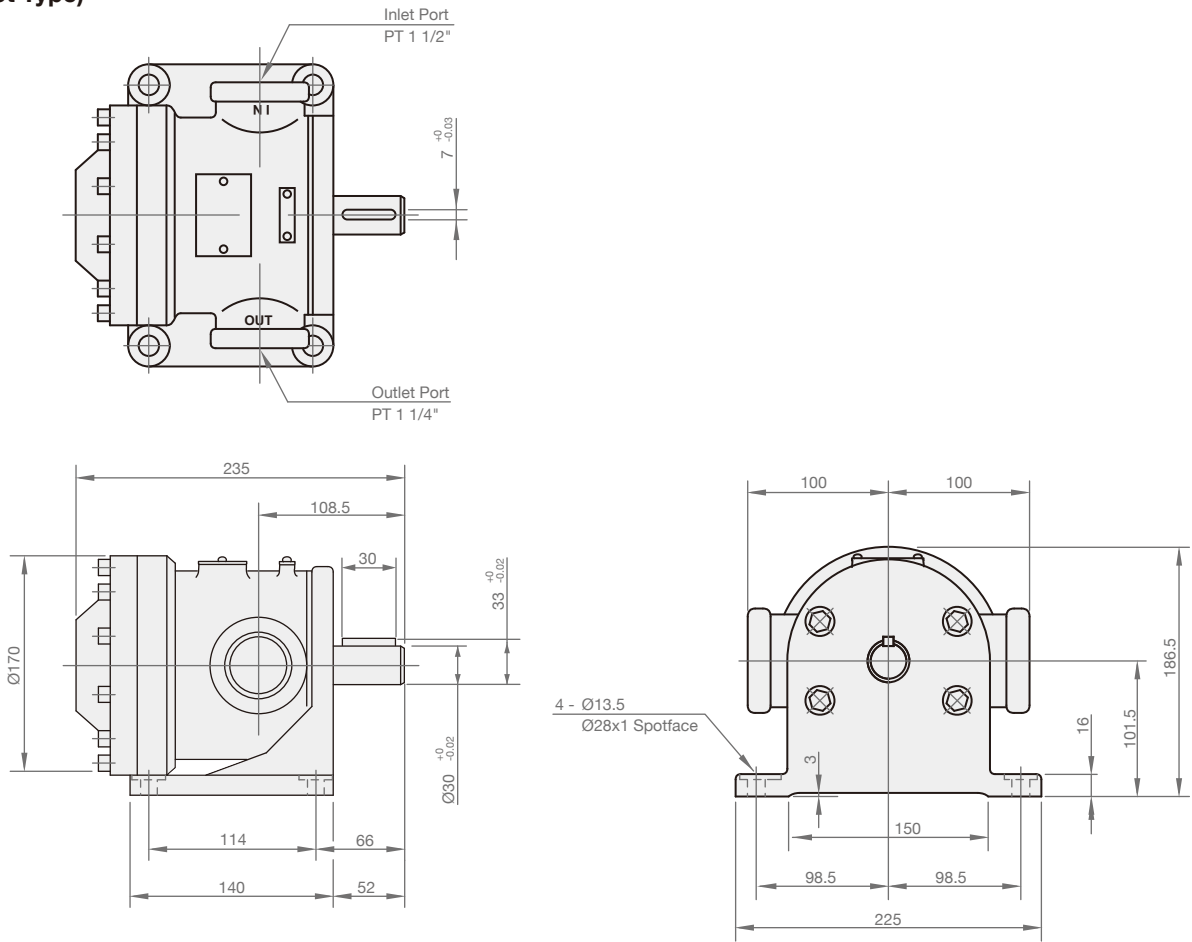
① ② ③ ④ ⑤

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	19.05 mm
		2	22 mm

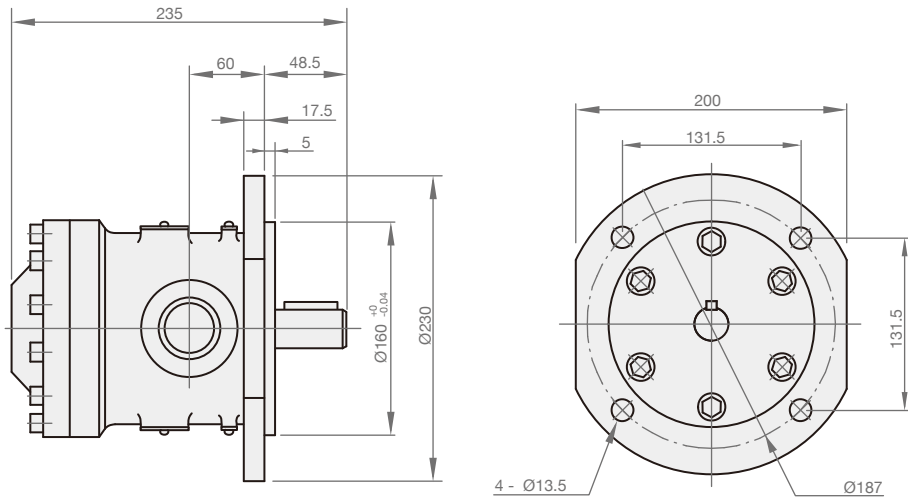
MODEL SPEC.

Model	Delivery Capacity (cc/rev)				Max. Pressure (kgf/cm ²)	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

► 150T (Foot Type)



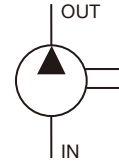
► 150T (Flange Type)



PV2R1



SYMBOLS



ORDER CODES

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

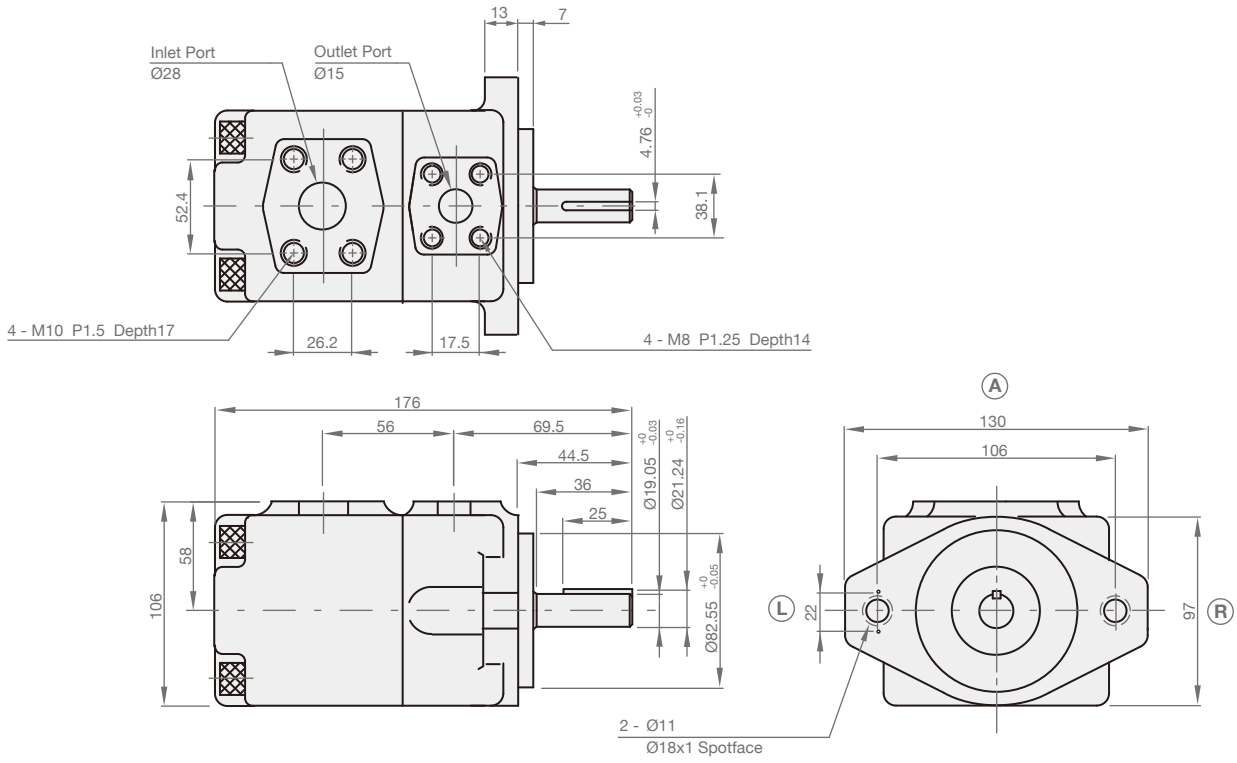
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1	▶ Model Name	PV2R1	
2	▶ Delivery at 1000 r.p.m.	06, 08, 10, 12, 14, 17, 19, 23, 25, 31, 33	
3	▶ Mounting	F	flange type
		L	foot type
4	▶ Direction of Revolving (Side View of Self Aligning Bearing)	R	clockwise direction
		L	counter clockwise direction

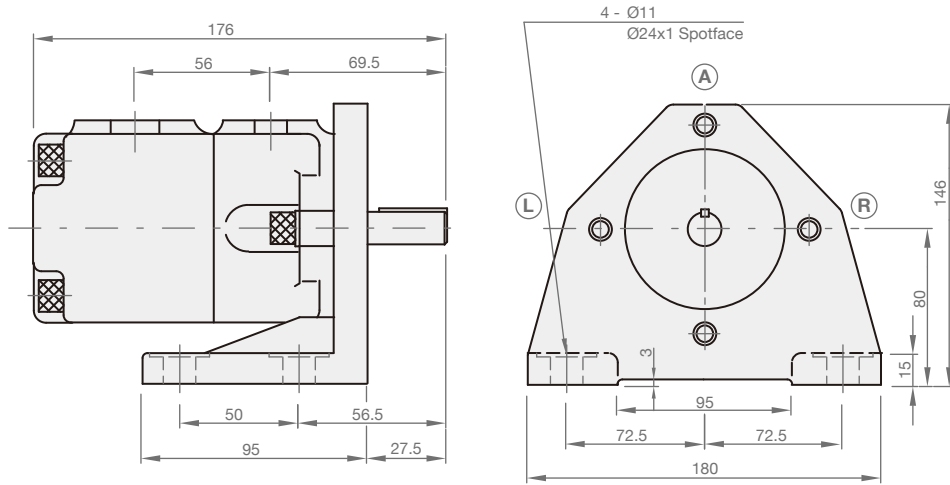
MODEL SPEC.

Model	Delivery Capacity (cc/rev)				Operational Pressure (kgf/cm ²)		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**

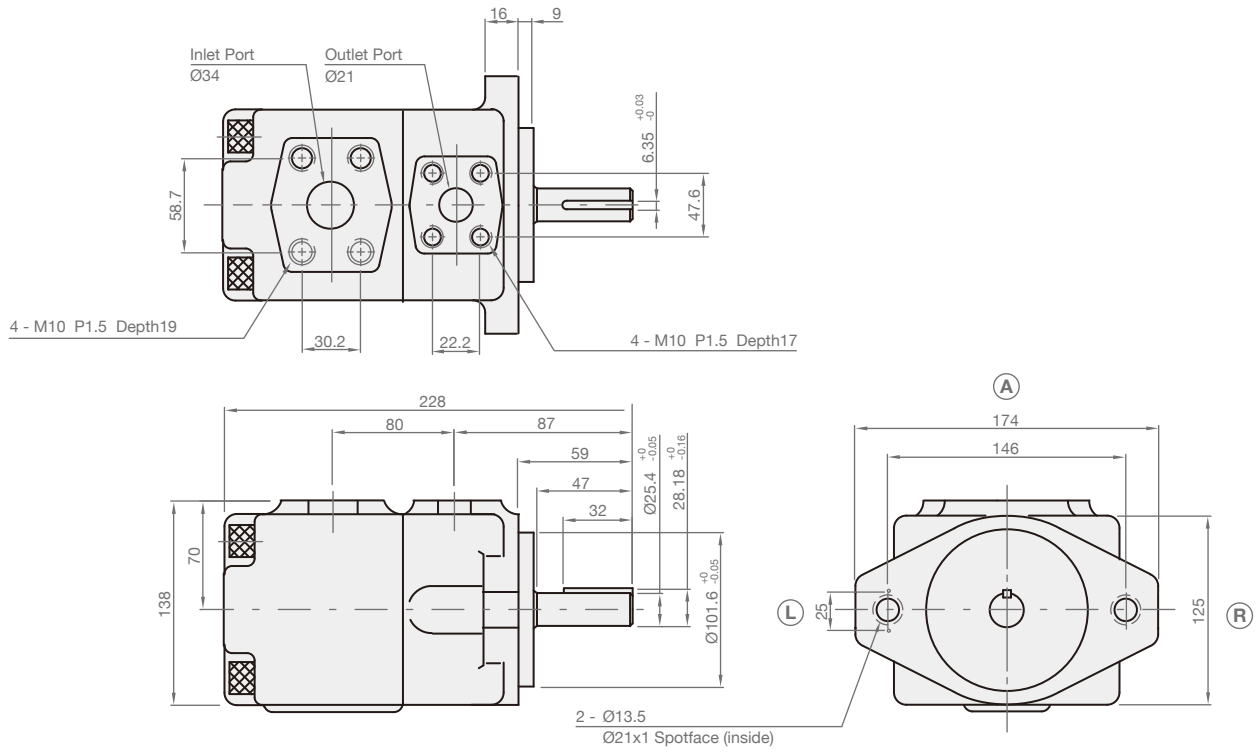
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①	▶ Model Name	PV2R2
②	▶ Delivery at 1000 r.p.m.	22, 26, 33, 38, 41, 47, 53, 59, 65, 75
③	▶ Mounting	F flange type
		L foot type
④	▶ Direction of Revolving (Side View of Self Aligning Bearing)	R clockwise direction
		L counter clockwise direction

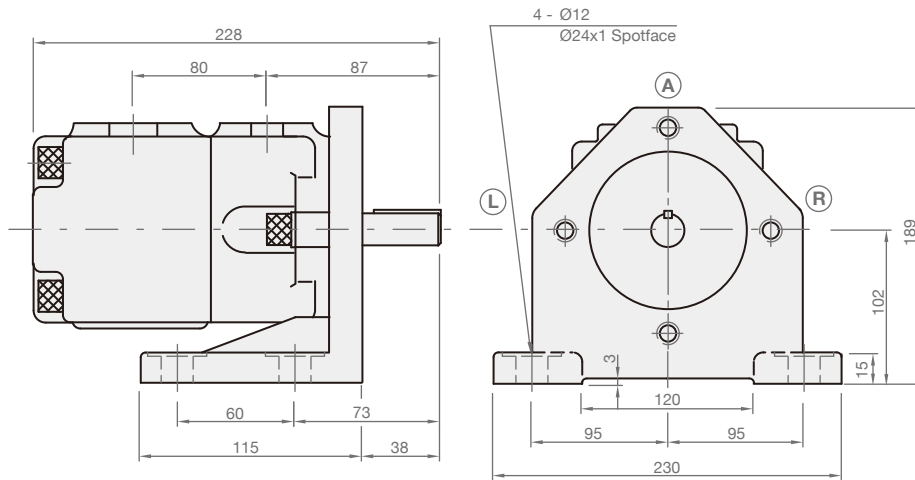
MODEL SPEC.

Model	Delivery Capacity (cc/rev)				Operational Pressure (kgf/cm ²)		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	175	160	950	1500	1 1/4"	3/4"	23.3	19
PV2R2-65	65.2	78	97.8	-								
PV2R2-75	75	90	112.5	-								

► PV2R2 (Flange Type)



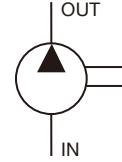
► PV2R2 (Foot Type)



PV2R3



SYMBOLS



ORDER CODES

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

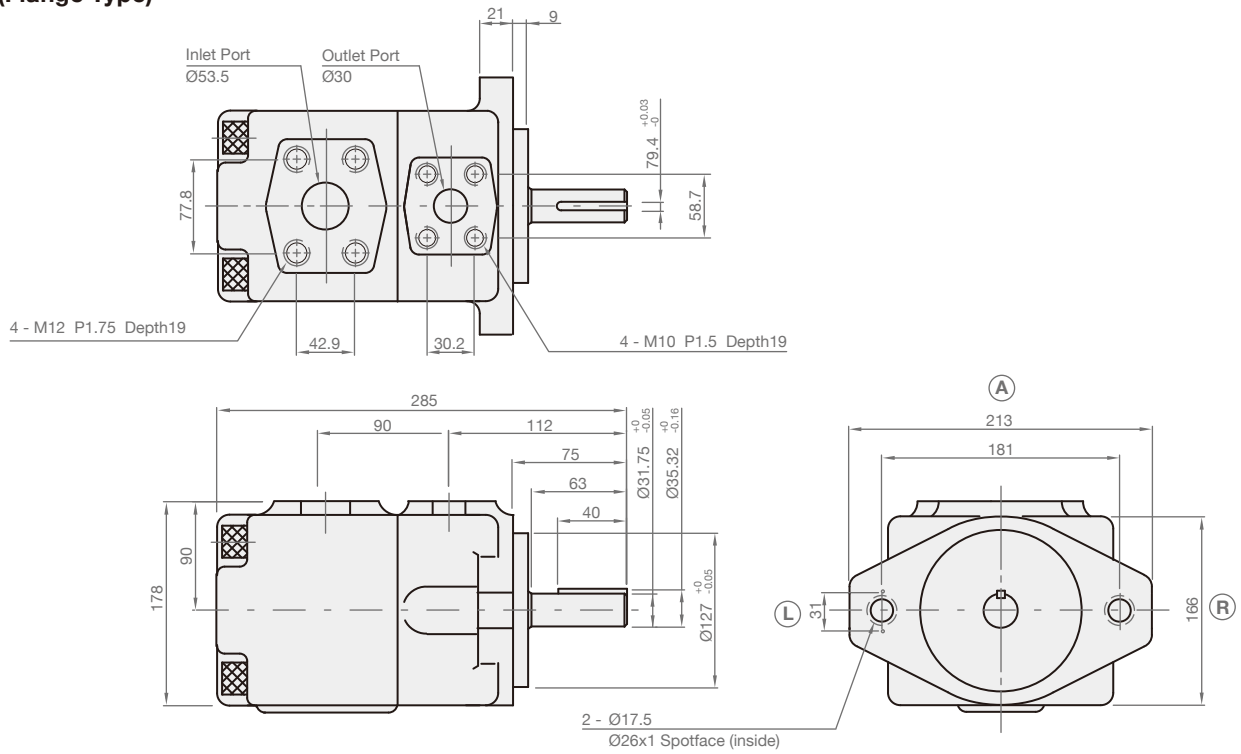
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1	▶ Model Name	PV2R3	
2	▶ Delivery at 1000 r.p.m.	60, 66, 76, 94, 116, 125	
3	▶ Mounting	F	flange type
		L	foot type
4	▶ Direction of Revolving (Side View of Self Aligning Bearing)	R	clockwise direction
		L	counter clockwise direction

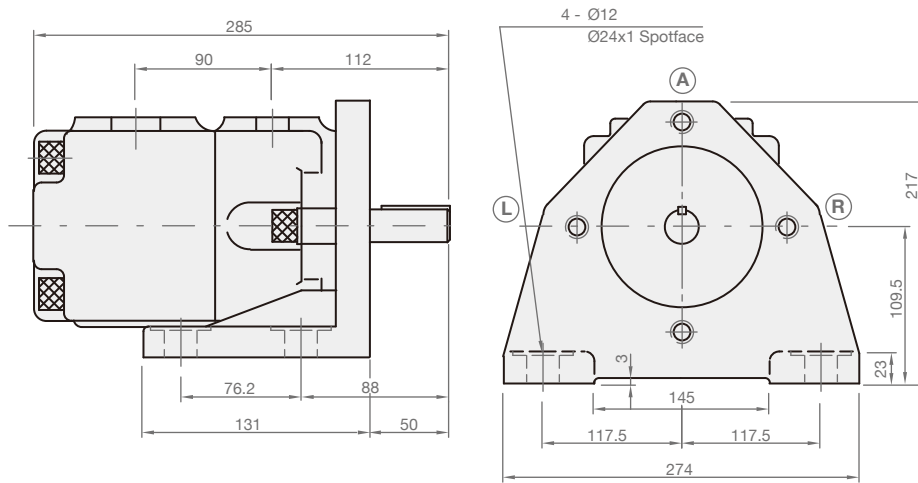
MODEL SPEC.

Model	Delivery Capacity (cc/rev)				Operational Pressure (kgf/cm ²)		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	-								

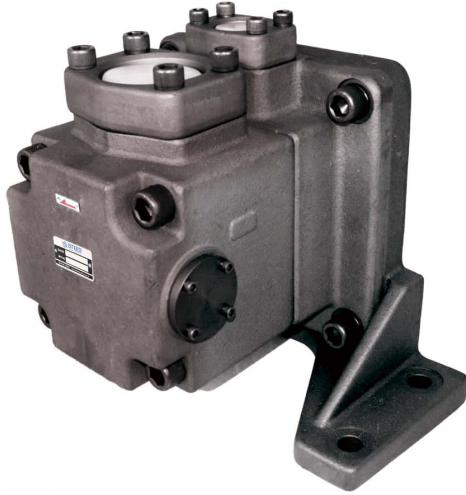
► PV2R3 (Flange Type)



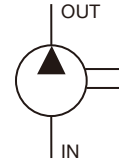
► PV2R3 (Foot Type)



PV2R4



SYMBOLS



ORDER CODES

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

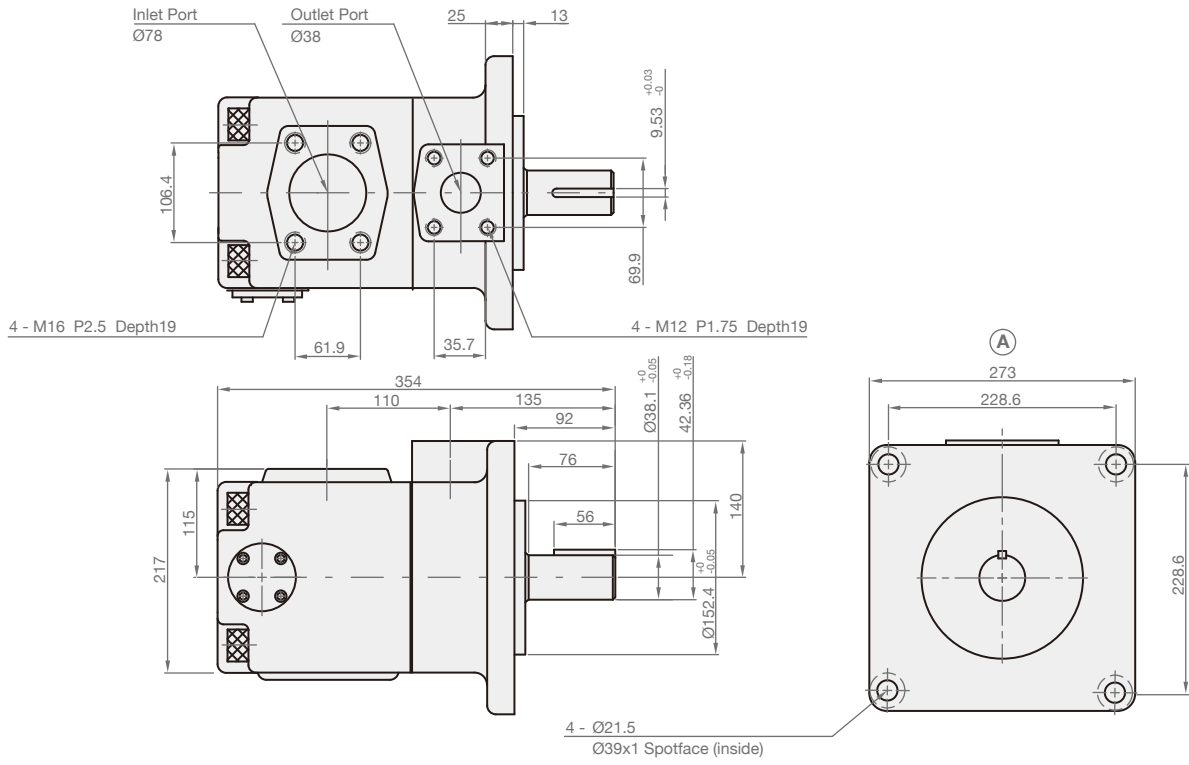
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①	▶ Model Name	PV2R1	
②	▶ Delivery at 1000 r.p.m.	136, 153, 184, 200, 237, 250	
③	▶ Mounting	F	flange type
		L	foot type
④	▶ Direction of Revolving (Side View of Self Aligning Bearing)	R	clockwise direction
		L	counter clockwise direction

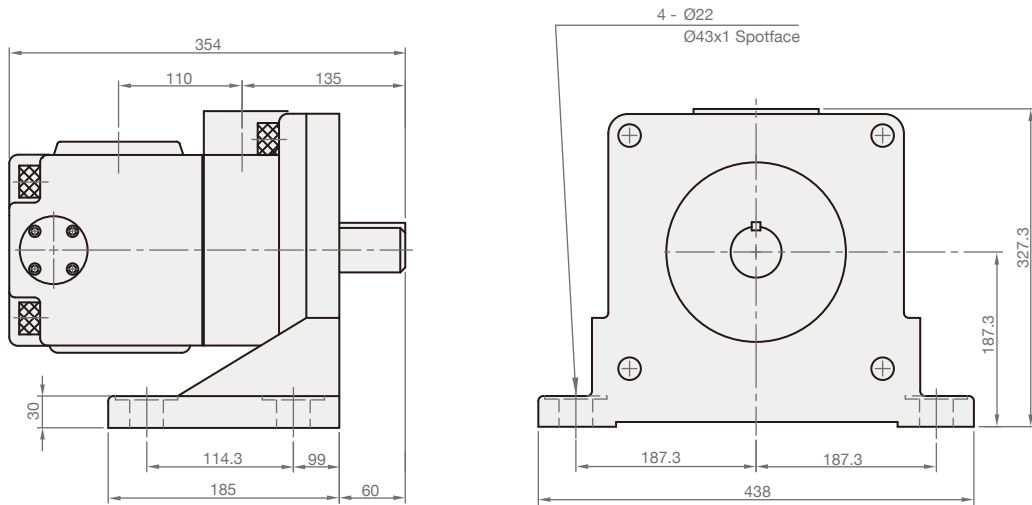
MODEL SPEC.

Model	Delivery Capacity (cc/rev)				Operational Pressure (kgf/cm ²)		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								
PV2R4-237	237	284.4	355.5	426.6	175	143	950	1200	3"	1 1/2"	93.5	68.5
PV2R4-250	250	300	375	450								

► PV2R4 (Flange Type)



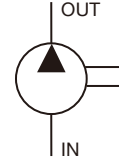
► PV2R4 (Foot Type)



VQ15



SYMBOLS



ORDER CODES

VQ15 - **11** - **L** - **R**

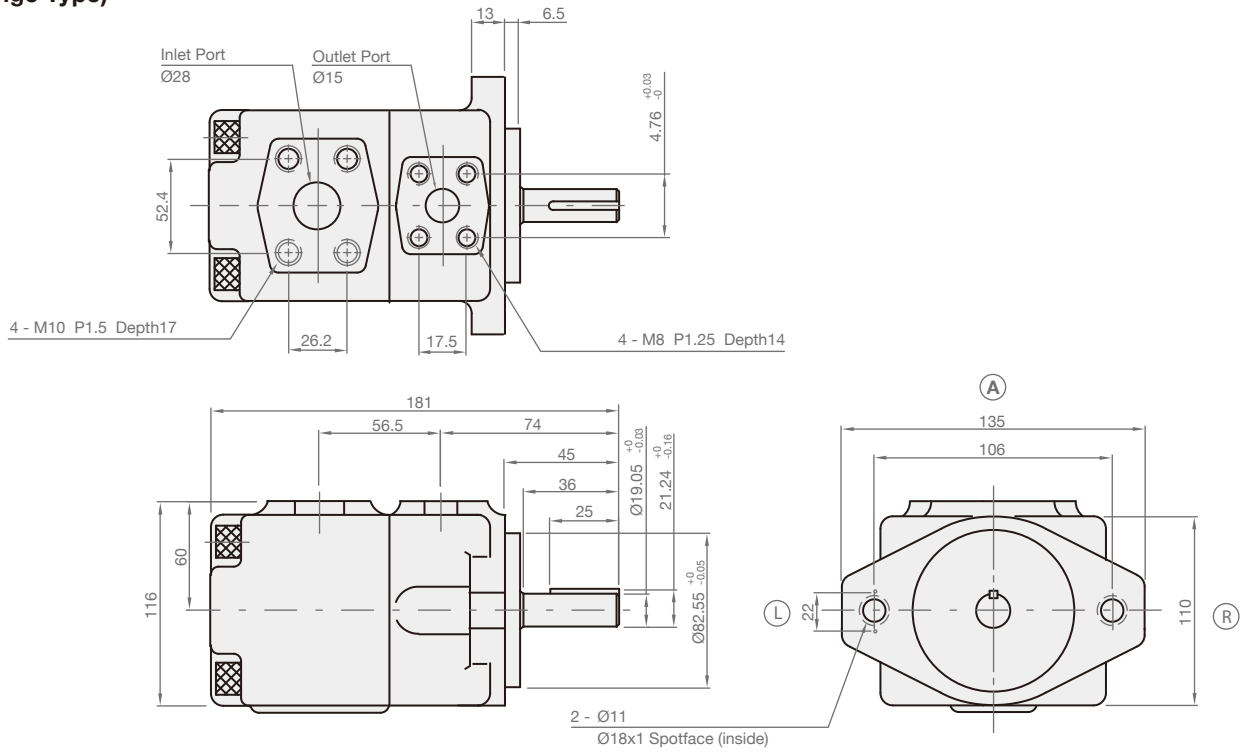
① ② ③ ④

① ▶	Model Name	VQ15	
② ▶	Delivery at 1000 r.p.m.	8, 11, 14, 17, 19, 23, 26, 31	
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

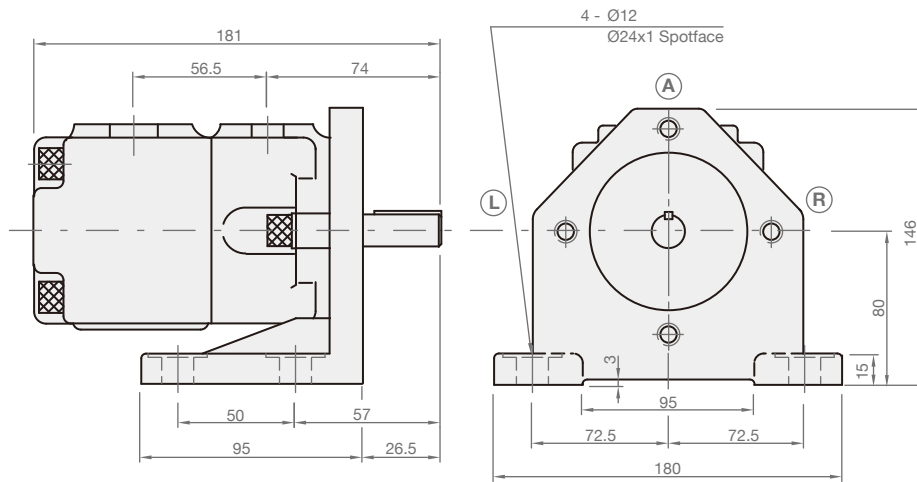
MODEL SPEC.

Model	Delivery Capacity (cc/rev)				Operational Pressure (kgf/cm ²)		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
VQ15-08	8.1	9.7	12.1	14.6	210	175	800	1800	1"	1/2"	12.5	10
VQ15-11	11.2	13.4	16.8	20.1								
VQ15-14	14.3	17.1	21.5	25.7								
VQ15-17	17.1	20.5	25.6	30.7								
VQ15-19	19.2	23	28.8	34.5								
VQ15-23	23.3	27.9	34.9	41.9								
VQ15-26	26.1	31.3	39.1	46.9	175	160	800	1500	1	1/2"	12.5	10
VQ15-31	31.1	37.3	46.6	-								

► VQ15 (Flange Type)



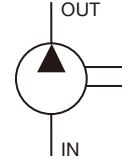
► VQ15 (Foot Type)



DS



SYMBOLS



ORDER CODES

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

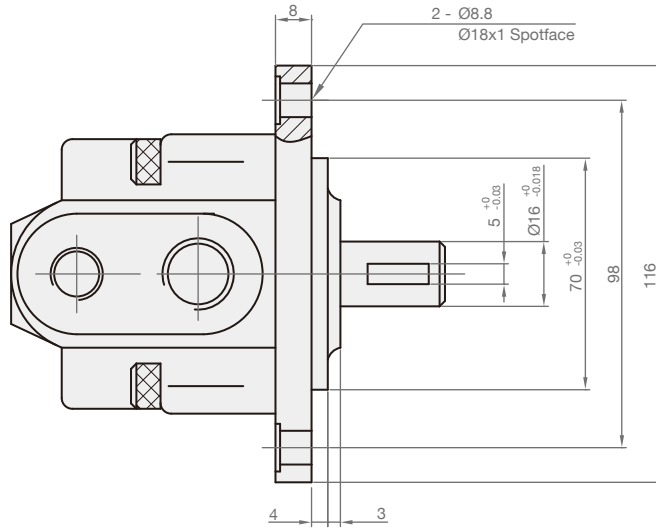
① ② ③ ④

① ▶	Model Name	DS	
② ▶	Interior Structure and Dimension	11, 12, 13, 14	
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

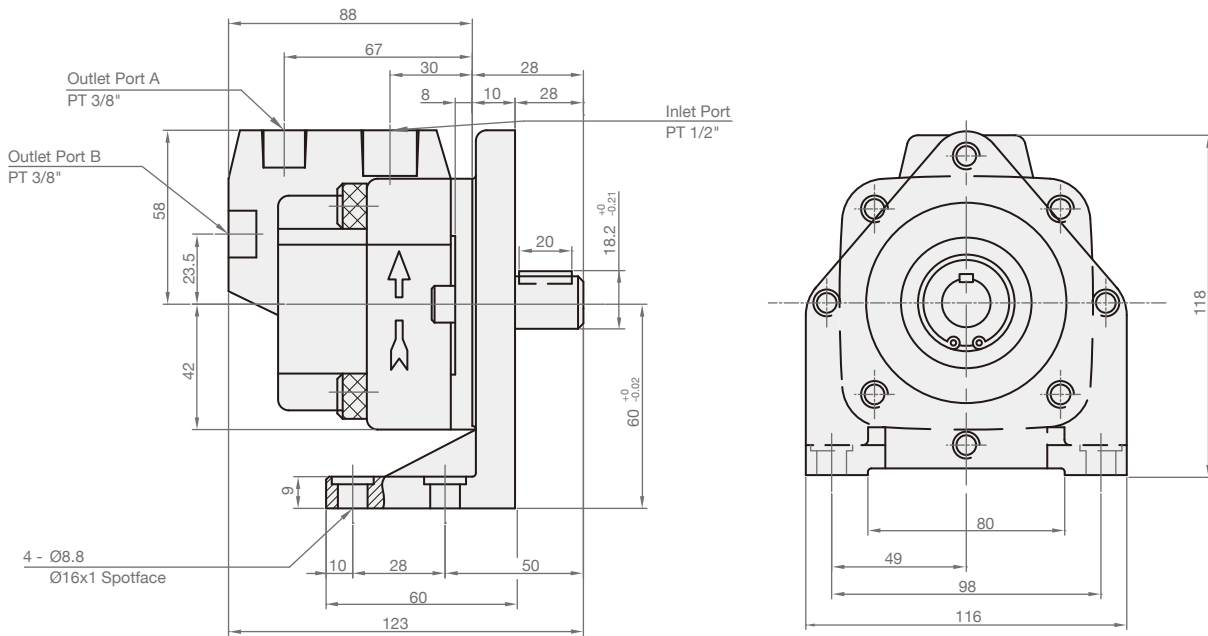
MODEL SPEC.

Model	Max. Pressure (kgf/cm ²)	Operational 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 ²)	35 (kgf/cm ²)	70 (kgf/cm ²)	5 (kgf/cm ²)	35 (kgf/cm ²)	70 (kgf/cm ²)						
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-FAL - **L** - **11** - **R**

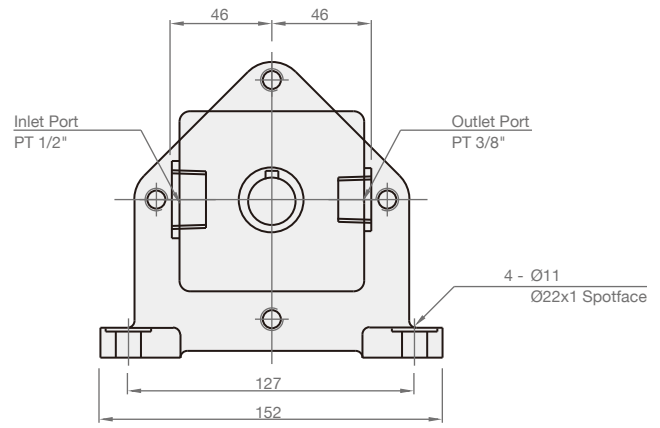
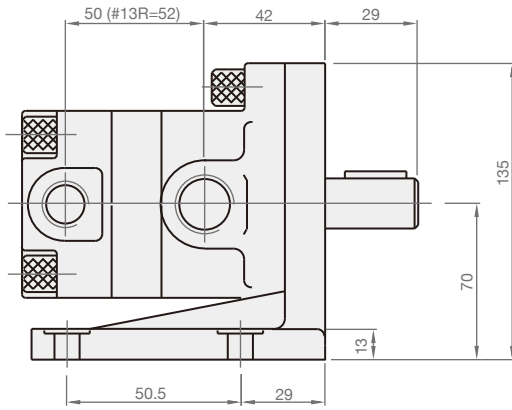
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1	▶ Model Name	HVP-FAI	
2	▶ Mounting	F	flange type
		L	foot type
3	▶ Delivery Capacity	5, 8, 11, 13	
4	▶ Direction of Revolving (Side View of Self Aligning Bearing)	R	clockwise direction
		L	counter clockwise direction

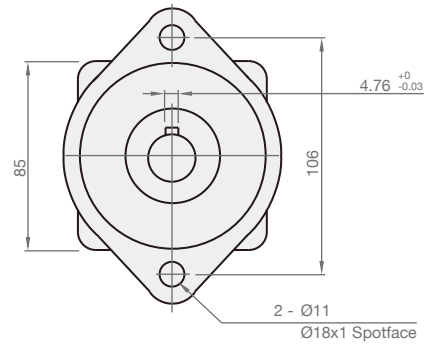
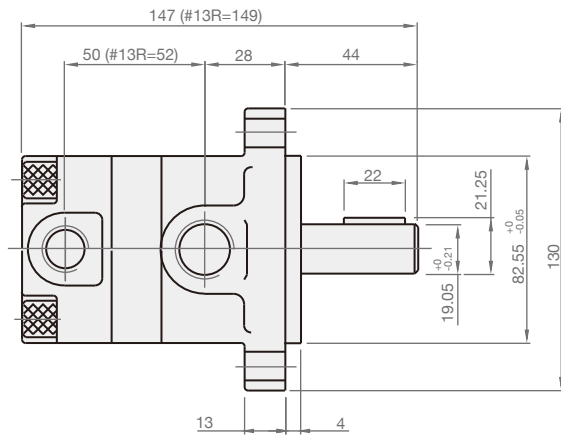
MODEL SPEC.

Model	Max. Pressure (kgf/cm ²)	Operational characteristics at 1200 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 ²)	35 (kgf/cm ²)	70 (kgf/cm ²)	5 (kgf/cm ²)	35 (kgf/cm ²)	70 (kgf/cm ²)						
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						

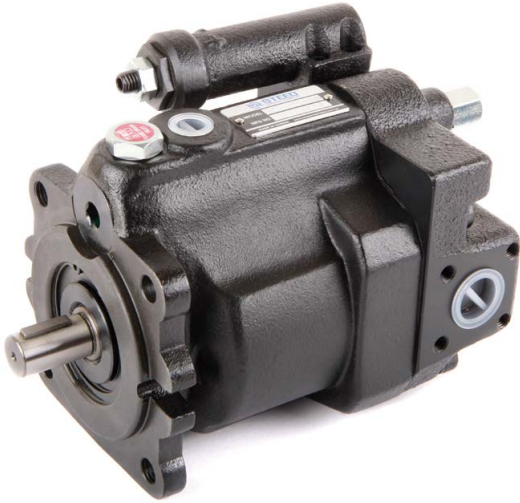
► HVP-FAI (Foot Type)



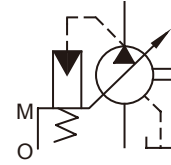
► HVP-FAI (Flange Type)



VPS



SYMBOLS



ORDER CODES

VPS - **F** - **10** - **A3**

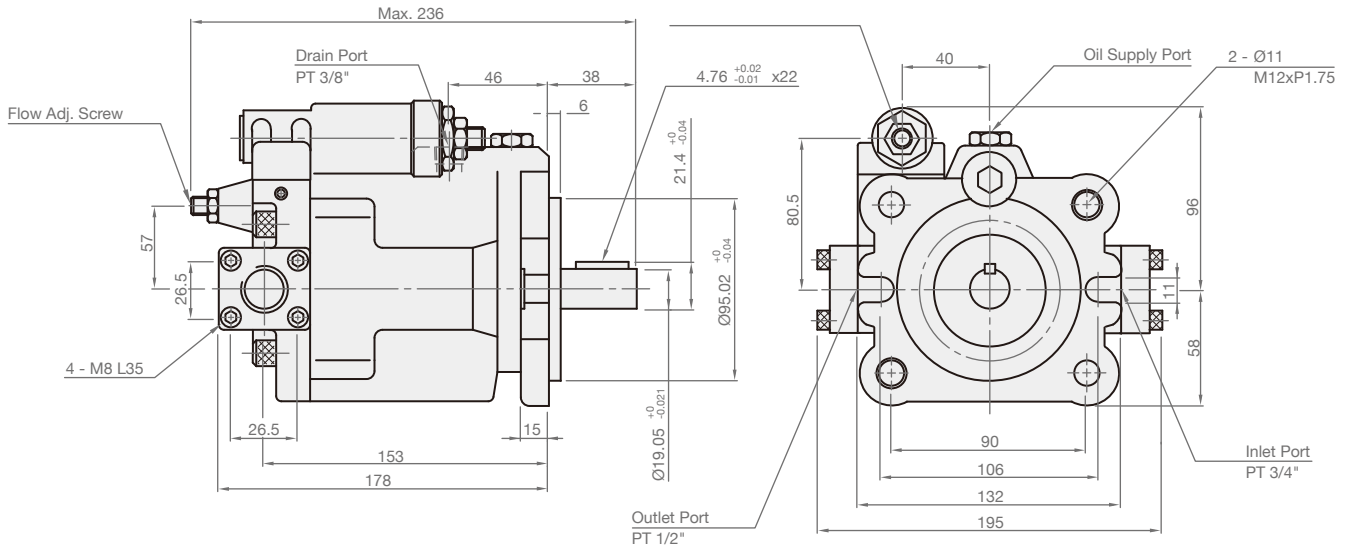
1 2 3 4

1	Model Name	VPS	
2	Mounting	F	flange type
		L	foot type
3	Delivery	10, 16, 23, 38, 43, 70	
4	Pressure Adj. Range	A3	30~210 kgf/cm ²

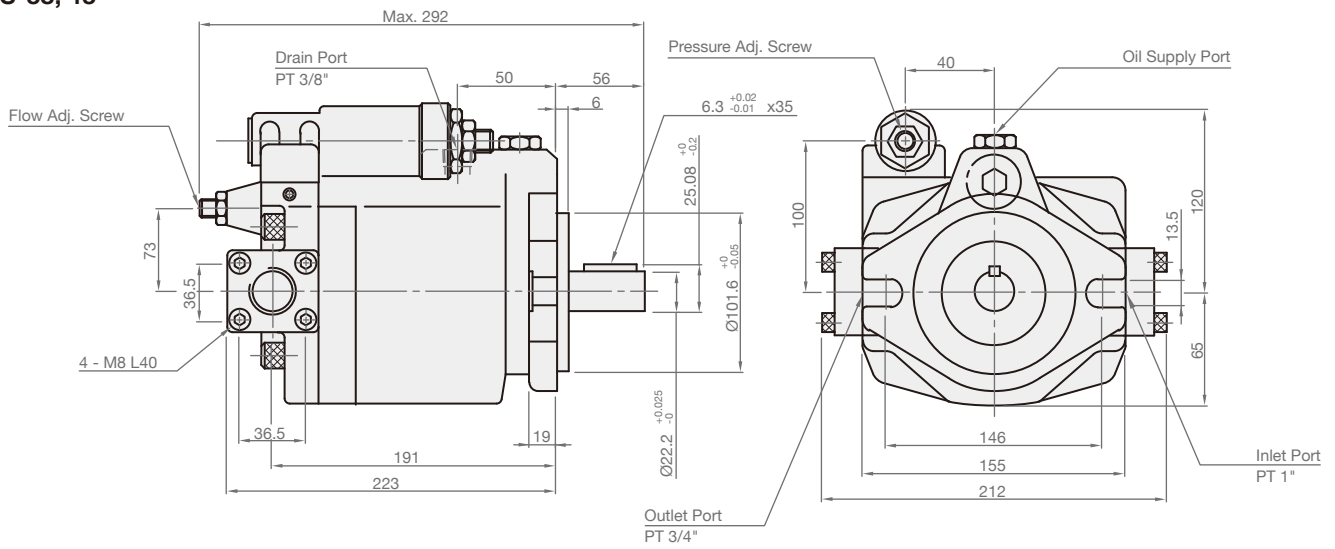
MODEL SPEC.

Model	Max. Pressure (kgf/cm ²)	Rated Pressure (kgf/cm ²)	Max. Output (l/min)	Speed (r.p.m.)		Ports Size (PT)			Weight (kg)
				Min.	Max.	Outlet	Inlet	DR	Flange Type
VPS-10	210	175	18	500	1800	3/4"	3/4"	3/8"	12
VPS-16			29.8			3/4"	3/4"	3/8"	13
VPS-23			40.5			3/4"	3/4"	3/8"	14
VPS-38			68			1"	1 1/4"	1/2"	24
VPS-43			77.4			1"	1 1/4"	1/2"	26
VPS-70			127.8			1 1/2"	1 1/2"	3/4"	48

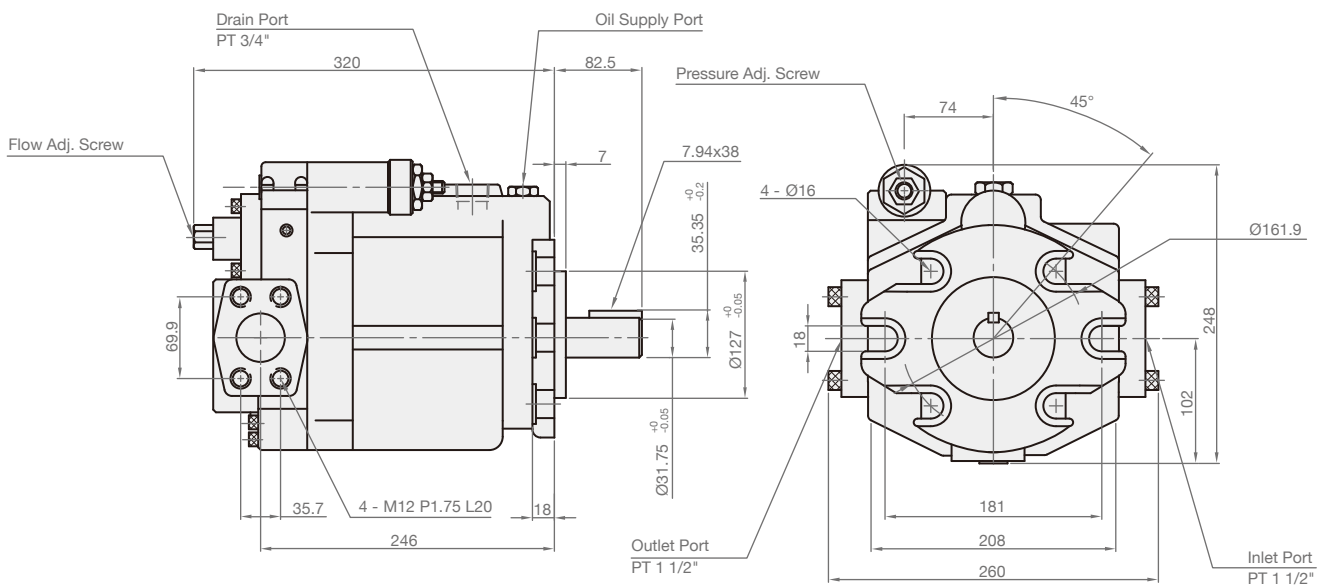
► VPS-10, 16, 23



► VPS-38, 43



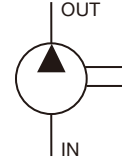
► VPS-70



GH1



SYMBOLS



ORDER CODES

GH1 - **04** - **C** - **L** - **R**

1 2 3 4 5

1	Model Name	GH1	
2	Delivery	02, 04, 07, 10, 15, 19	
3	Application	C	chemical (PU)
		S	spindle coolant
4	Mounting	F	flange type
		L	foot type
5	Direction of Revolving (Side View of Self Aligning Bearing)	R	clockwise direction
		L	counter clockwise direction

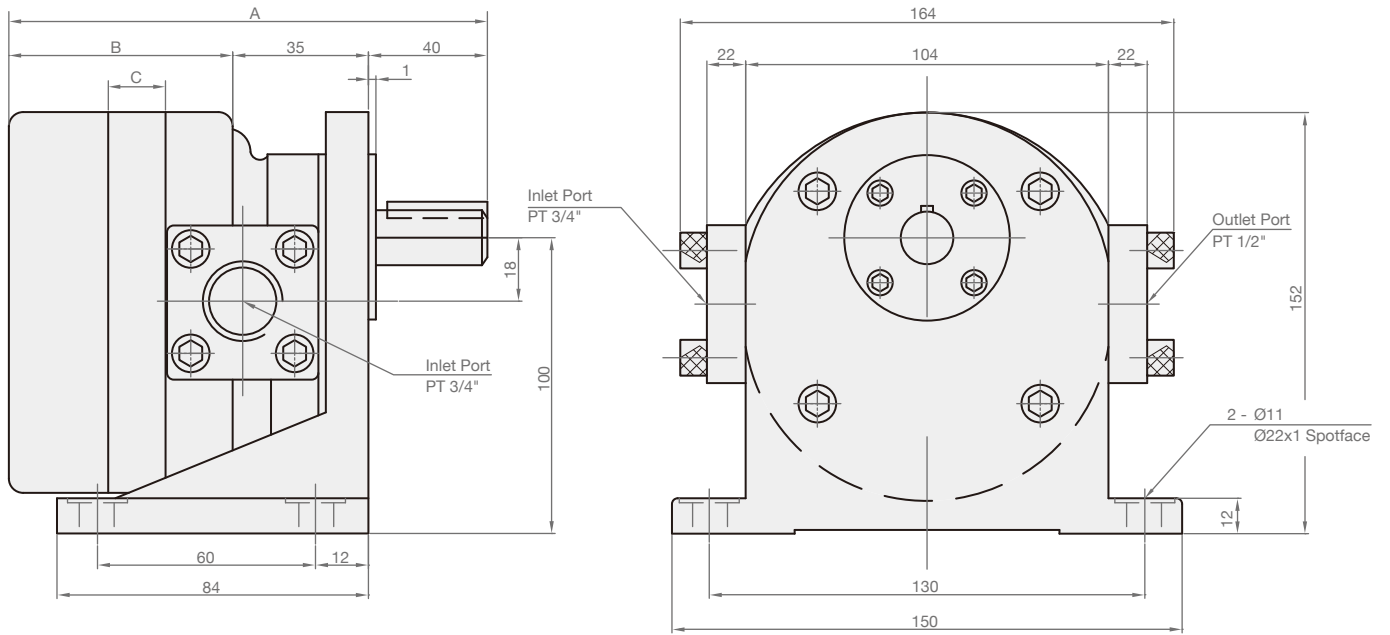
* The raw material of seal: VITON
The raw material of shaft: JIS G4103 SNCM-21 (SAE8620)

MODEL SPEC.

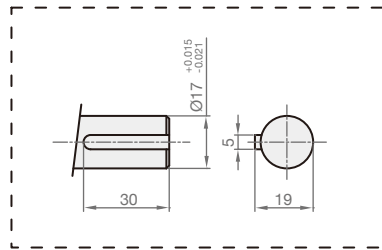
Model	Max. Pressure (kgf/cm ²)	Delivery (cc/rev)	Speed (r.p.m.)		Ports Size (PT)		Weight (kg)
			Min.	Max.	Outlet	Inlet	
GH1-02	140	2.2	200	2000	1/2"	3/4"	8
GH1-04	140	4.5					8.5
GH1-07	140	7					9
GH1-10	140	10.4					9.5
GH1-15	140	15					9.8
GH1-19	140	19					10.5

* For PU usage, the recommended speed is 100 to 500 r.p.m., and the operational pressure is 35 to 50 kgf/cm².

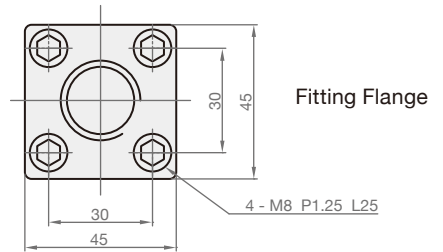
► GH1



Model	A	B	C
GH1-02	149	74	5
GH1-04	154	79	10
GH1-07	160	85	16
GH1-10	167	92	23
GH1-15	172	97	28
GH1-19	179	104	35



Shaft dimensions



Fitting Flange

GH2



SYMBOLS



ORDER CODES

GH2 - **25** - **C** - **L** - **R**

1 2 3 4 5

1	Model Name	GH2	
2	Delivery	25, 30, 35, 40	
3	Application	C	chemical (PU)
		S	spindle coolant
4	Mounting	F	flange type
		L	foot type
5	Direction of Revolving (Side View of Self Aligning Bearing)	R	clockwise direction
		L	counter clockwise direction

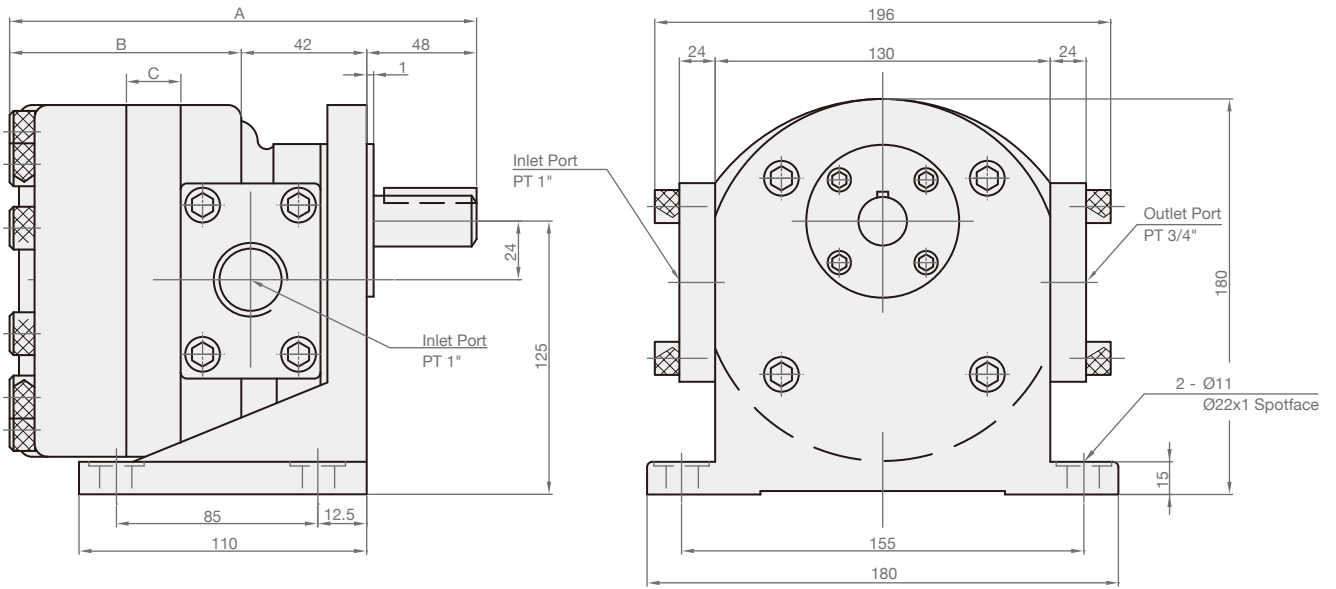
* The raw material of seal: VITON
 The raw material of shaft: JIS G4103 SNCM-21
 (SAE8620)

MODEL SPEC.

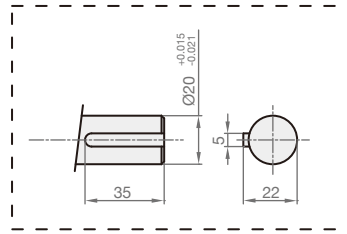
Model	Max. Pressure (kgf/cm ²)	Delivery (cc/rev)	Speed (r.p.m.)		Ports Size (PT)		Weight (kg)
			Min.	Max.	Outlet	Inlet	
GH2-25	120	25	200	2000	3/4"	1"	19
GH2-30	120	30					19.5
GH2-35	120	35					20
GH2-40	120	40					20.5

* For PU usage, the recommended speed is 100 to 500 r.p.m., and the operational pressure is 35 to 50 kgf/cm².

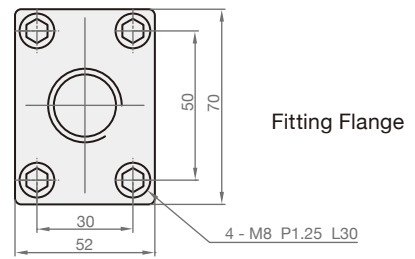
► GH2



Model	A	B	C
GH2-25	215	122	35
GH2-30	222	129	42
GH2-35	234	136	49
GH2-40	236	143	56



Shaft dimensions



Fitting Flange

GH4



SYMBOLS



ORDER CODES

GH4 - **50** - **C** - **L** - **R**

1 2 3 4 5

1	Model Name	GH4	
2	Delivery	50, 60, 70, 80	
3	Application	C	chemical (PU)
		S	spindle coolant
4	Mounting	F	flange type
		L	foot type
5	Direction of Revolving (Side View of Self Aligning Bearing)	R	clockwise direction
		L	counter clockwise direction

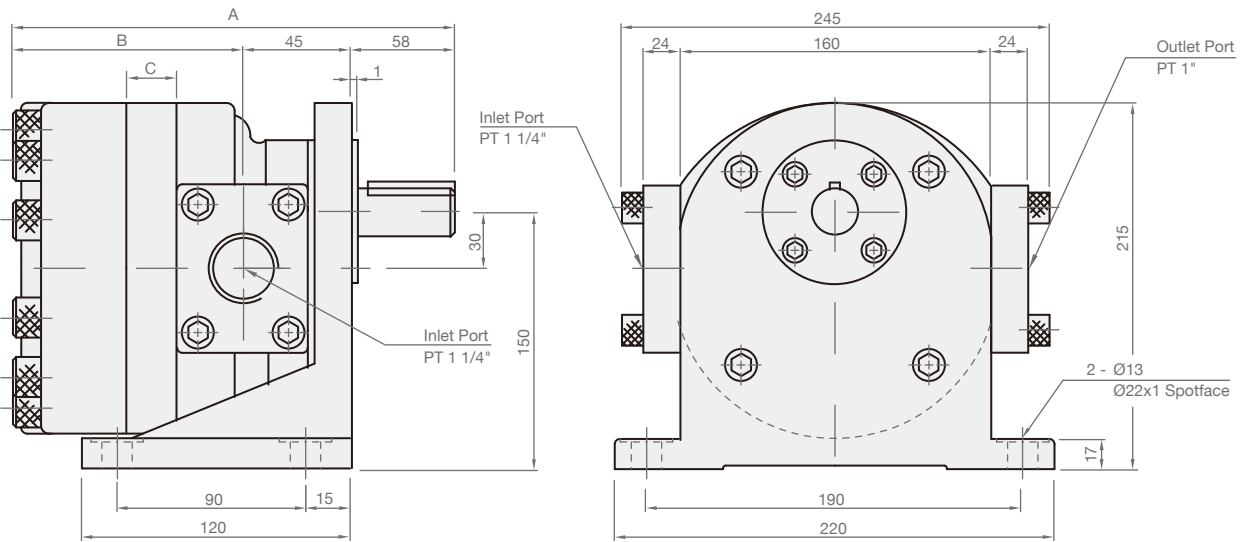
* The raw material of seal: VITON
 The raw material of shaft: JIS G4103 SNCM-21
 (SAE8620)

MODEL SPEC.

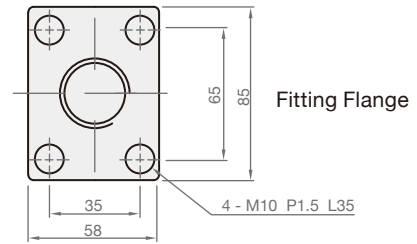
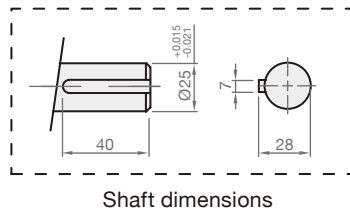
Model	Max. Pressure (kgf/cm ²)	Delivery (cc/rev)	Speed (r.p.m.)		Ports Size (PT)		Weight (kg)
			Min.	Max.	Outlet	Inlet	
GH4-50	100	50	200	1800	1"	1 1/4"	30
GH4-60	100	60					31
GH4-70	100	70					32
GH4-80	100	80					33

* For PU usage, the recommended speed is 100 to 500 r.p.m., and the operational pressure is 35 to 50 kgf/cm².

► GH4



Model	A	B	C
GH4-50	226	117	38
GH4-60	234	125	46
GH4-70	242	133	54
GH4-80	250	141	62



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