

B

VANE PUMPS

Pump Type		KS Graphic Symbol	Output Flow L/min(1200r/min{rpm}, no-load)										Maximum Operation Pressure MPa {kgf/cm ² }	Page
			1	2	5	10	20	50	100	200	500	1000		
Fixed	Single Pumps							50T	150T				7 {71.4}	B-4
	PV2R Series Single Pumps							PV2R1	PV2R2	PV2R3			21 {214}	B-10
	PV2R Series Double Pump						Small Volume	(PV2R1)	(PV2R2)				21 {214}	B-21
								Large Volume	(PV2R2)	(PV2R3)				

Hydraulic Fluids

1. Type of hydraulic fluids

The hydraulic fluids shown below can be used.

With some types, however, specifications such as maximum operating speeds may be changed.

For details, see the pump ratings concerned.

Hydraulic Fluids

(Table1)

Type of hydraulic fluids		Single Pumps	PV2R Series Single Pumps PV2R Series Double Pump
Petroleum Base Oils		Use anti-wear type oils, R&O type oils or specially specified hydraulic oils for high pressure use (equivalent to ISO VG32 or 46)	
Synthetic Fluids		Use phosphate ester type fluids. When phosphate ester type fluid is to be used, prefix F- to the model number because a special seal (fluororubber) will be used.	
Water Fluids	Water-Glycols	Please contact us	Standard pumps can be used without Containig conditions. The maximum operating pressure is limited
	Water in Oil Emulsions	Please contact us	Standard pumps can be used without conditions.

2. Fluid viscosity and temperature

Use hydraulic fluids on condition that the fluid viscosity and temperature requirements in Table 4 be met.

Note that if any of the pumps shown in Table5 is started at loq speed, the maximum fluid viscosity is limited.

Fluid viscosity and temperature

(Table2)

Fluid	Temperature °C	Viscosity mm ² /s {cSt}
Petroleum Base Oils	0~70	20~400
Phosphate Esters		
Water Glycols	0~50	
Water in Oil Emulsions	5~50	

Maximum viscosity for low start-up speed

(Table3)

Pump Type	Start-up Speed r/min {rpm}	Max Viscosity mm ² /s {cSt}
PV2R1, PV2R12 PV2R13	750	100
	950	200
50T, 150T PV2R2 PV2R23	600	100
	950	200

3. Control of contamination

Contamination of hydraulic fluids results in pump failures and reduced pump lives. Carry out sufficient contamination control for hydraulic fluids and keep contamination level within NAS class 12. Also, use a 100μ(150-mesh) tank filter on the suction side, more than 50mm(2 in.) away from the tank bottom.

Instructions

1. Alignment of shaft

Employ a flexible coupling whenever possible and avoid any stress from bending or thrust.

Maximum permissible misalignment is less than 0.25 mm (.01 inches) TIR and maximum permissible misangular is less than 0.2 °.

2. Suction pressures

Set suction pressures, at the pump inlet, at the valves shown below.

In addition, use suction pipes having the gauges shown in the dimensional drawings.

If the pump is installed above the tank level, set the suction port below more than 1.0(3.3ft) from the oil level {or 0.8m(2.6ft.) if a phosphate ester type or water containing type fluid is used}.

Pump Type		Suction Pressure		
		Minimum		Maximum
		Petroleum base oil	Phosphate ester type fluid Water containing fluid	
Single Pumps	50T, 150T	-20 kPa {-150 mmHg}	-16 kPa {-120 mmHg}	+140 kPa {+1.4 kgf/cm ² }
PV2R Series Single Pumps	PV2R1, PV2R2	-20 kPa {-150 mmHg}	-16 kPa {-120 mmHg}	+30 kPa {+0.3 kgf/cm ² }
	PV2R3	-20 kPa * {-150 mmHg}		
PV2R Series Double Pump	PV2R12	-20 kPa {-150 mmHg}		
	PV2R13, PV2R23	-20 kPa * {-150mmHg}		

★ With some nominal displacement volumes, minimum suction pressures are limited because of pump speeds. For details see the pump specifications.

3. Precautions at starting

At an initial operation or at operation after a long rest, the pump may have difficulty in sucking up fluid.

In such cases, an air bleed valve should be installed beforehand on the discharge side(model No. ST1004-*-10*, P.762), or discharge air by slightly slackening the connection on the discharge side. At starting, operate the pump intermittently as far as possible with no load. For fluid viscosity at starting, see the following page.

4. Other precautions

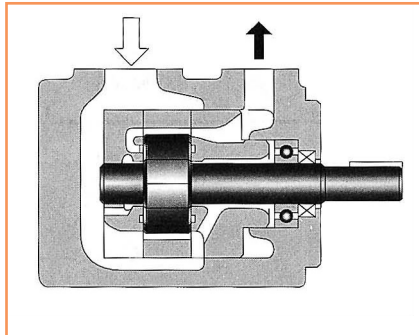
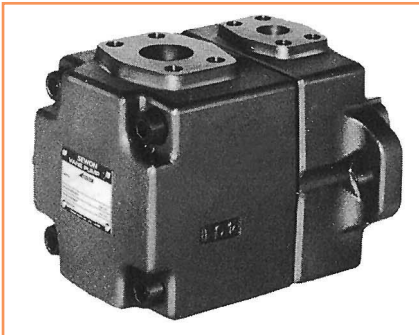
If a pump is used at speed below 1200r/min, install the pump with the suction port upside so that the pump can suck up fluid easily at starting.



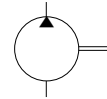
Fixed Vane
Pumps

PV2R Series Single Vane Pumps

The pumps have been developed especially for low noise operation. To comply with a wide range of applications for instance the injection moulding machine industry, we provide the wide range of delivery volume [5.8-237.0cm³/rev. (.354-14.46cu. in/rev)] for the pumps. The main internal spare parts of the pumps are built in asn cartridge kit. Therefore, the maintenance can be easily done by simply changing the cartridges.



KS Graphic Symbol



Model Number Designation

PV2R1	-6	-L	-R	A	A	-41
Series Number	Nominal Displacement cm ³ /rev	Type of Mounting	Shaft Rotation	Discharge Port Position	Suction Port Position	Design Number
PV2R1	6, 8, 10, 12, 14, 17, 19	L : Foot Mounting	Viewed from shaft end	Viewed from shaft end	Viewed from shaft end	41
	23, 25, 31					41
PV2R2	41, 47 53, 59, 65	F : Flange Mounting	R : Clockwise ^{★1} (Normal)	A : Upwards (Normal)	A : Upwards (Normal)	41
PV2R3	76, 94, 116					31

★1. Available to supply pump with anti-clockwise rotation.Consult SEWON for detail.

★2. Special seals(Viton Seals) are required when phosphate ester type fluids are used.(put F- before model code of pipe flange when ordering).

Pipe Flange Kits

Pipe flange kits are available. When ordering, specify kits from the table below.

Pump Model Numbers	Name of port	Pipe Flange Kit Numbers		
		Threaded Connection	Socket welding [★]	Butt welding
PV2R1	Suction Port	F5-08-A-10	F5-08-B-10	F5-08-C-10
	Discharge Port	F5-04-A-10	F5-04-B-10	F5-04-C-10
PV2R2	Suction Port	F5-10-A-10	F5-10-B-10	F5-10-C-10
	Discharge Port	F5-06-A-10	F5-06-B-10	F5-06-C-10
PV2R3	Suction Port	F5-16-A-10	F5-16-B-10	F5-16-C-10
	Discharge Port	F5-10-A-10	F5-10-B-10	F5-10-C-10

★Incase of using socket welding flange, there is a case where the operating pressure should be set lower than the normal because of strength of the flange. Therefore, please pay cautious attention to the operating pressure when the socket welding flange are used.

Notes: Special seals(Viton Seals) are required when phosphate ester type fluids are used.(put F- before model code of pipe flange when ordering).

■ Ratings

Model Numbers	Geometric Displacem ent cm³/rev	Max Operating Pressure MPa {kgf/cm²}						Output Flow Input Power	Shaft Speed Range r/min {rpm}	
		Peroleum Base Oils		Water Containing Fluids			Synthetic Fluids		Max. ^{*2}	Min.
		Anti-Water Type	R&O Type	Anti-Wear Type Water Glycols	Water Glycols	Water in Oil Emulsions	Phosphate Esters			
PV2R1-6	5.8	21 ^{*4}	16 {163}	16 {163}	7 {71.4}	7 {71.4}	16 {163}	Refer to Pages 61~63	1800 (1200)	750 ^{*3}
PV2R1-8	8.0	{214}								
PV2R1-10	9.4	21 {214}								
PV2R1-12	12.2									
PV2R1-14	13.7									
PV2R1-17	16.6									
PV2R1-19	18.6									
PV2R1-23	22.7									
PV2R1-25	25.3									
PV2R1-31	31.0	16 {163}								
PV2R2-41	41.3	21 {214}	14 {143}	16 {163}	7 {71.4}	7 {71.4}	14 {143}	Refer to Pages 63~64	1800 (1200)	600 ^{*3}
PV2R2-47	47.2									
PV2R2-53	52.5									
PV2R2-59	58.2									
PV2R2-65	64.7									
PV2R3-76	76.4	21 {214}	14 {143}	16 {163}	7 {71.4}	7 {71.4}	14 {143}	Refer to Pages 64~65	1800 (1200)	600
PV2R3-94	93.6	16 {163}							1800 ^{*1} (1200)	
PV2R3-116	115.6									

■ Mass

Model Numbers	Mass kg	
	Flange Mtg.	Foot Mtg
PV2R1	9.0	11.2
PV2R2	15.5	19.8
PV2R3	30.9	40.9

★1. For the brands of specially specified hydraulic fluids for high pressure use and anti-wear water-glycols, see Hydraulic Fluids on page 30.

Model Numbers	Min. Suction Pres.	
	1700r/min {rpm} less than	1700~1800r/min {rpm} less than
PV2R3-116	-20kPa {-150mmHg}	0kPa {0mmHg}

★2. If PV2R3-116 is used at speed above 1700rpm(r/min) the suction pressure is limited to 0 bar(0 in. Hg.).

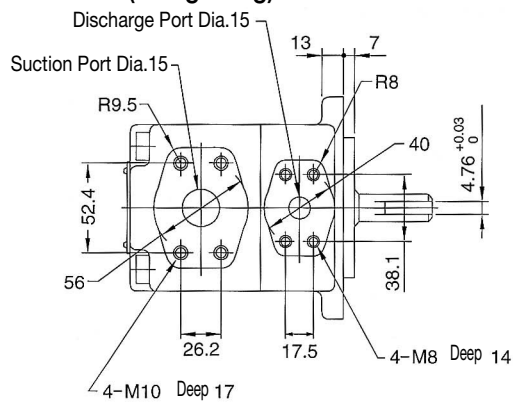
★3. If phosphate esters or water containing fluids are used, the maximum speed is limited to 1200rpm(r/min).

★4. For starting at low speed, the maximum viscosity is limited.

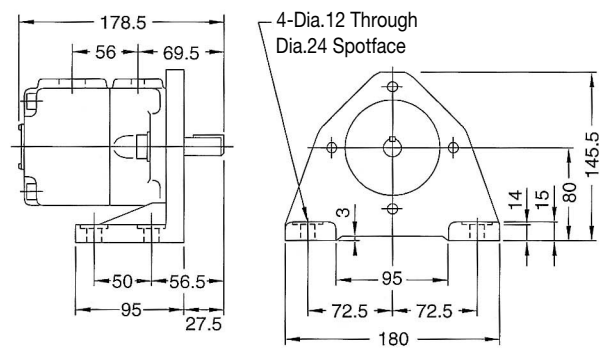
For details, see Hydraulic Fluids on page

★5. With pressure above 160 bar(2285 PSI), raise the speed over 1450rpm(r/min).

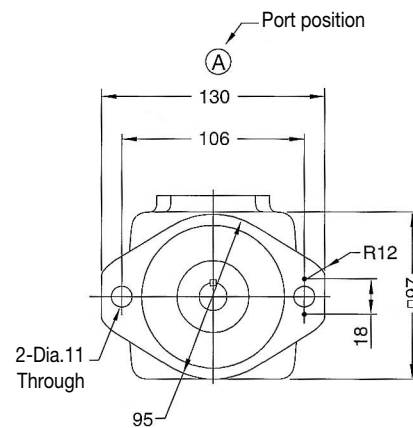
PV2R1-※-F(Flange Mtg)



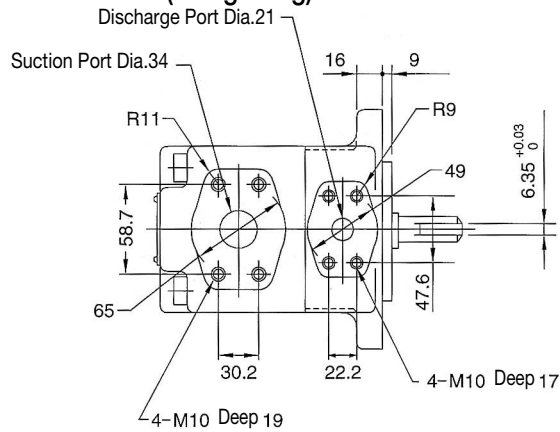
PV2R1-※-L(Foot Mtg)



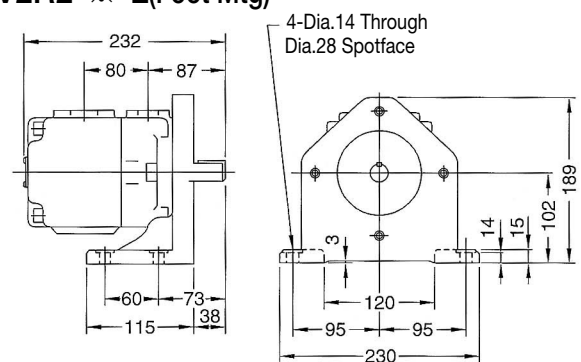
For other dimension, refer to Flange Mtg.



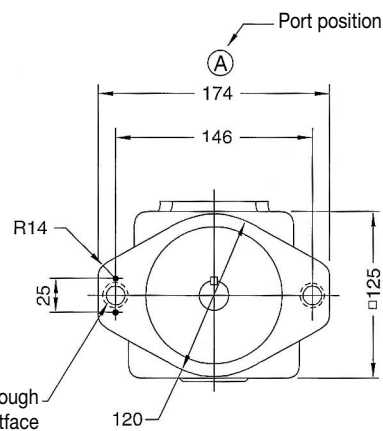
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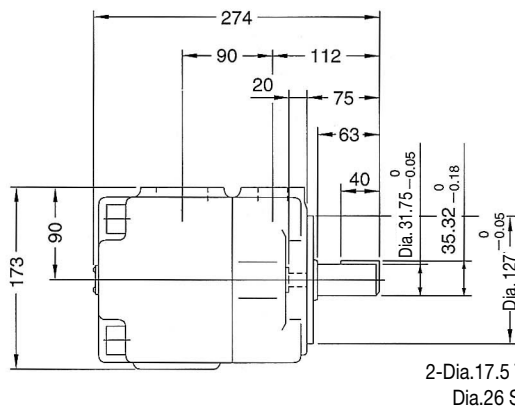
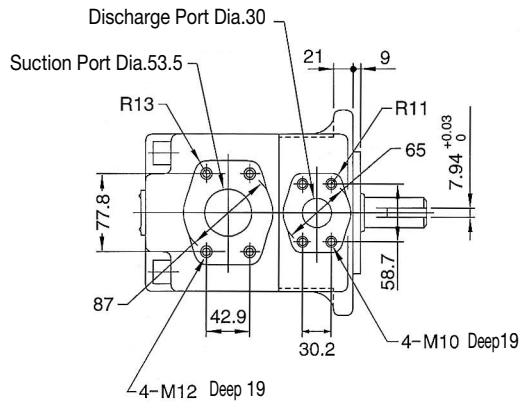
PV2R2-※-L(Foot Mtg)



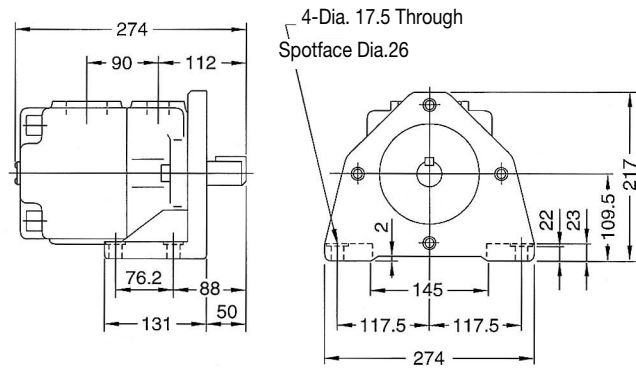
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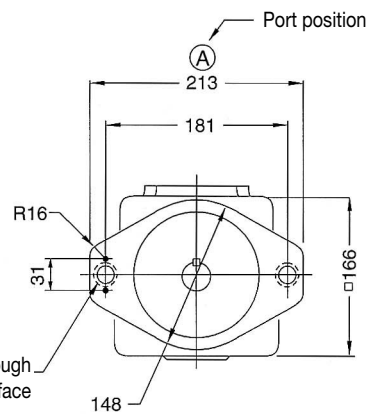
PV2R3-※-F(Flange Mtg)



PV2R3-※-L(Foot Mtg)



For other dimension, refer to Flange Mtg.



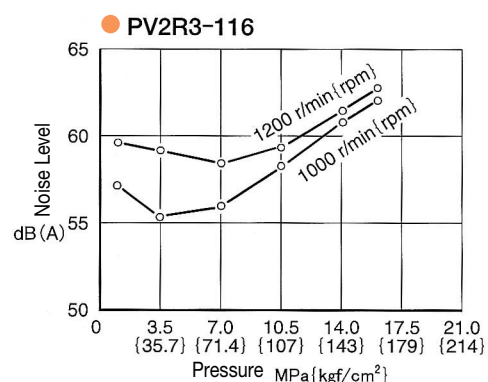
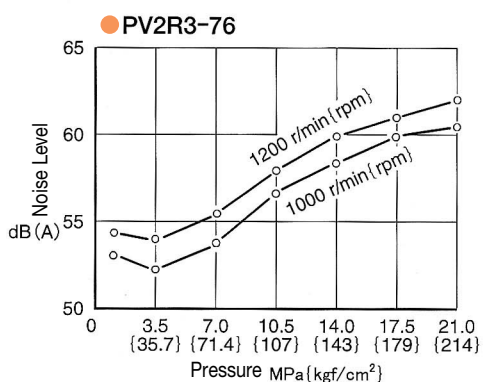
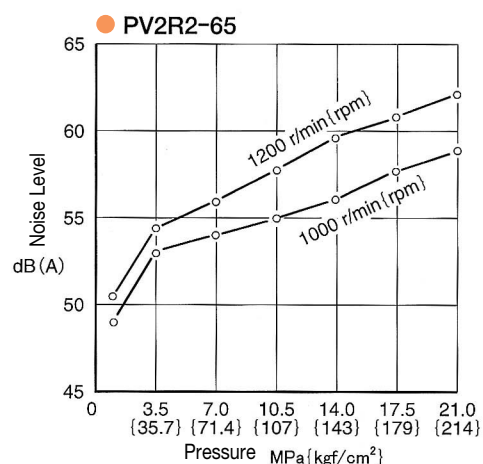
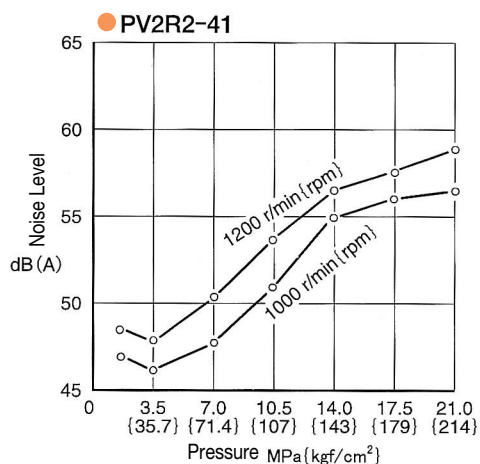
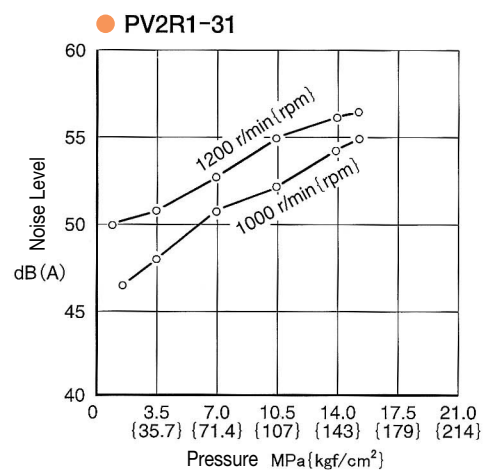
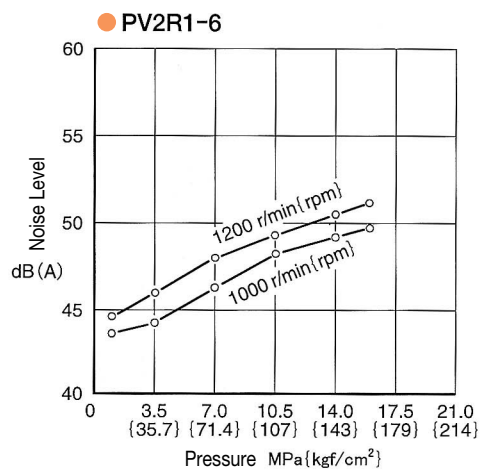
Noise Level

Measuring conditions

Fluid viscosity : 32mm²/s {cSt}

Measurement point : One meter horizontally away from pump head cover

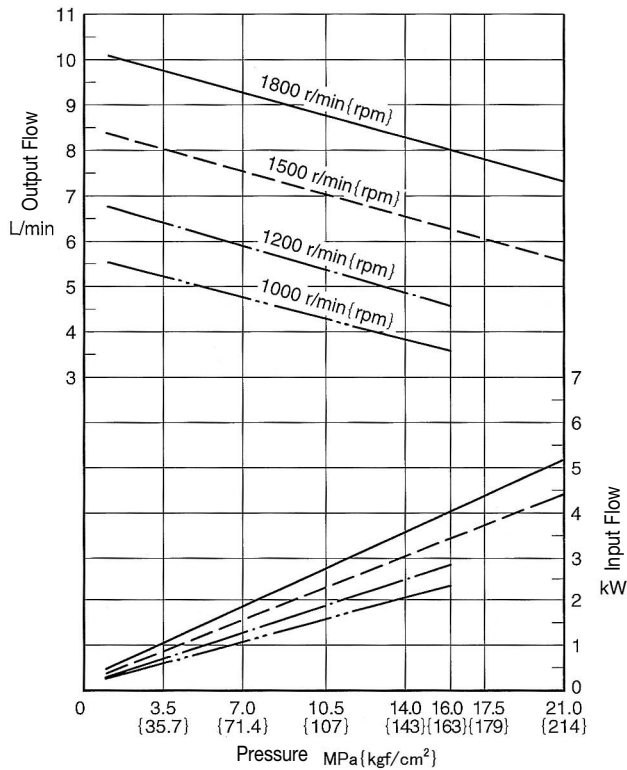
Background noise : 40dB(A)



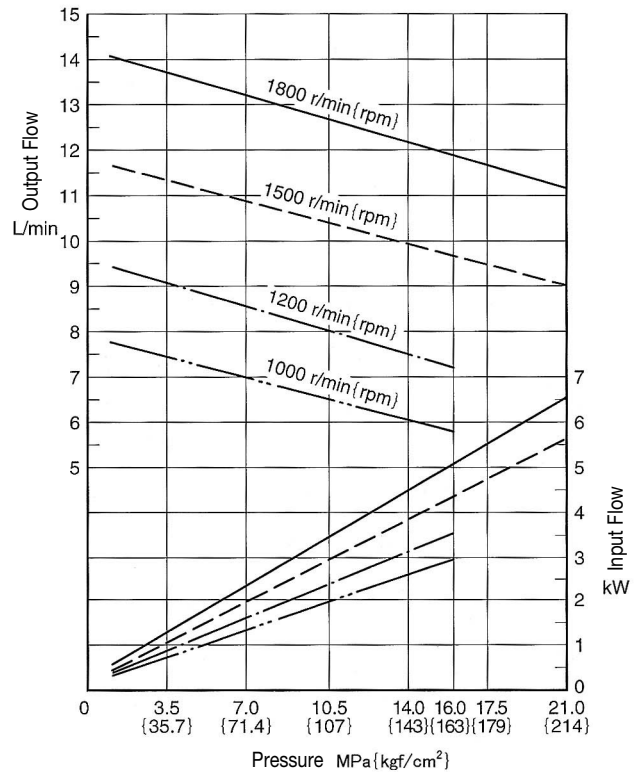
Characteristics

Typical performance characteristics at viscosity 32mm²/s(ISO VG 32 Oil, 50°C)

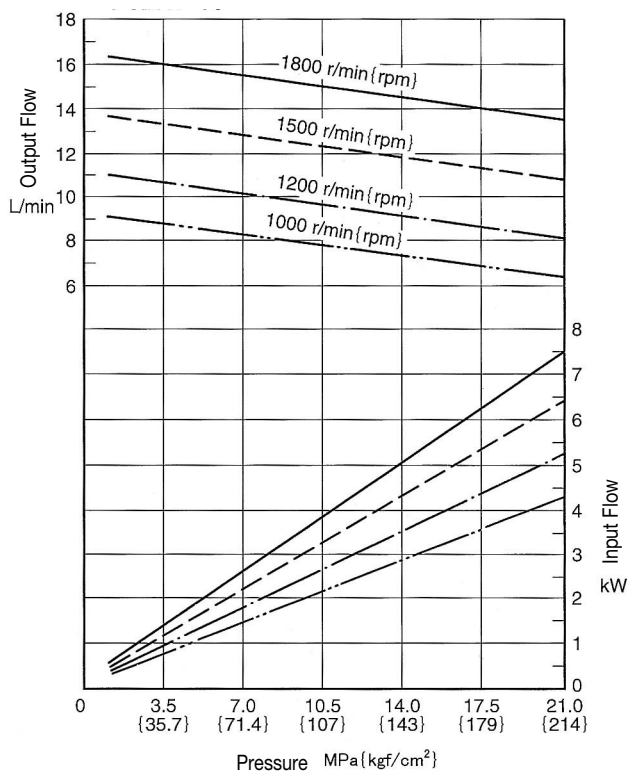
● PV2R1-6



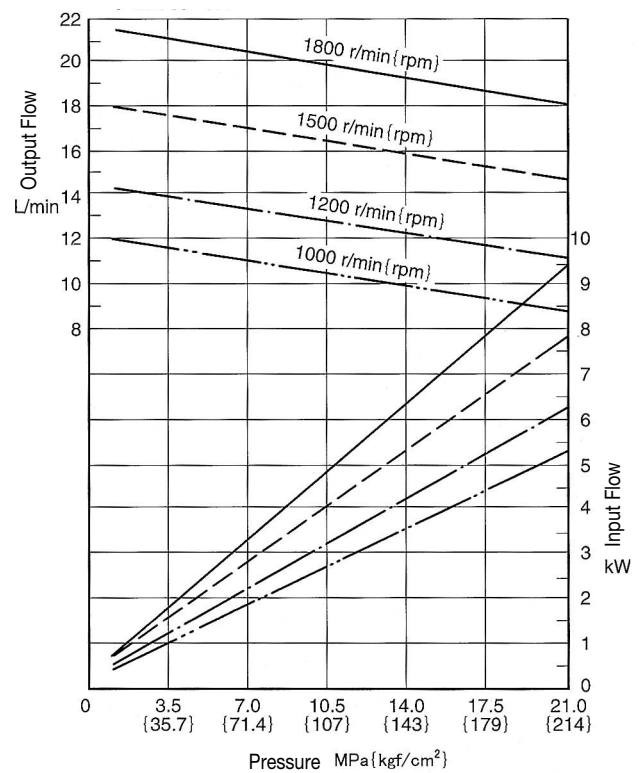
● PV2R1-8



● PV2R1-10

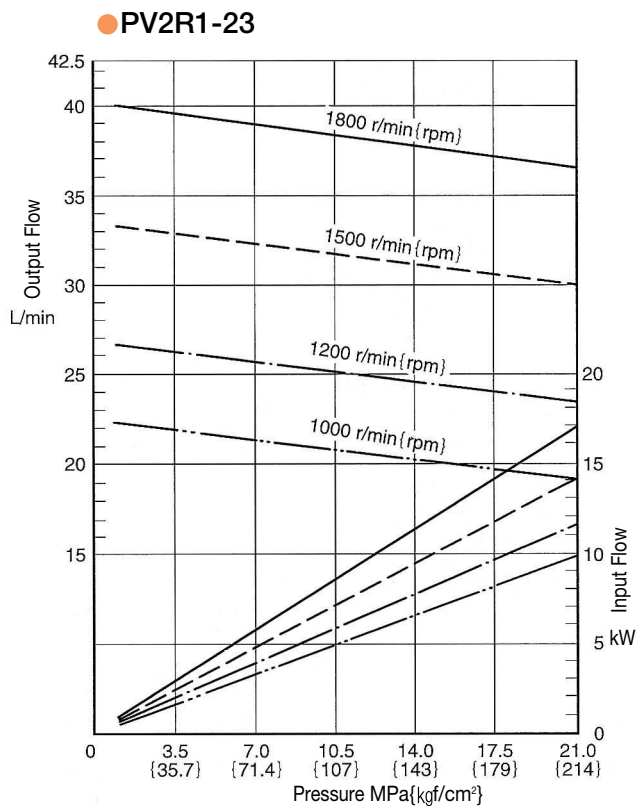
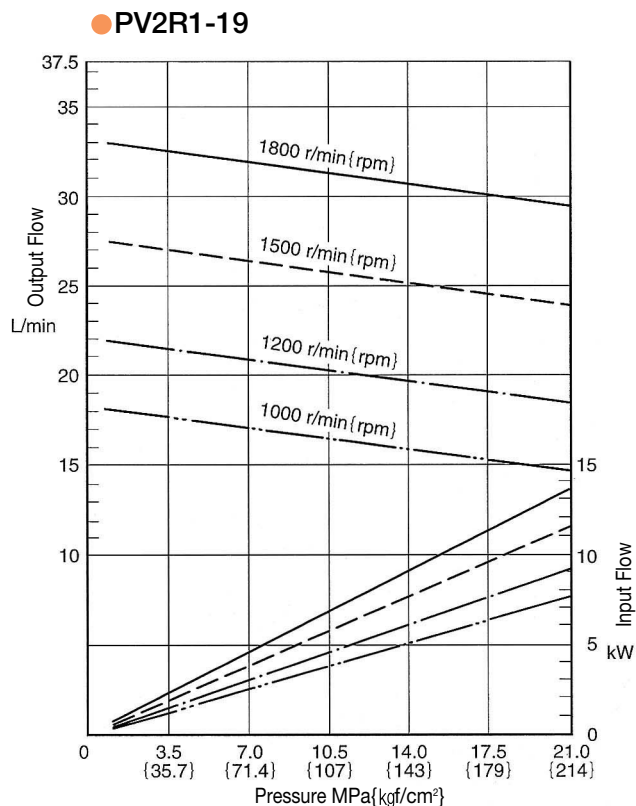
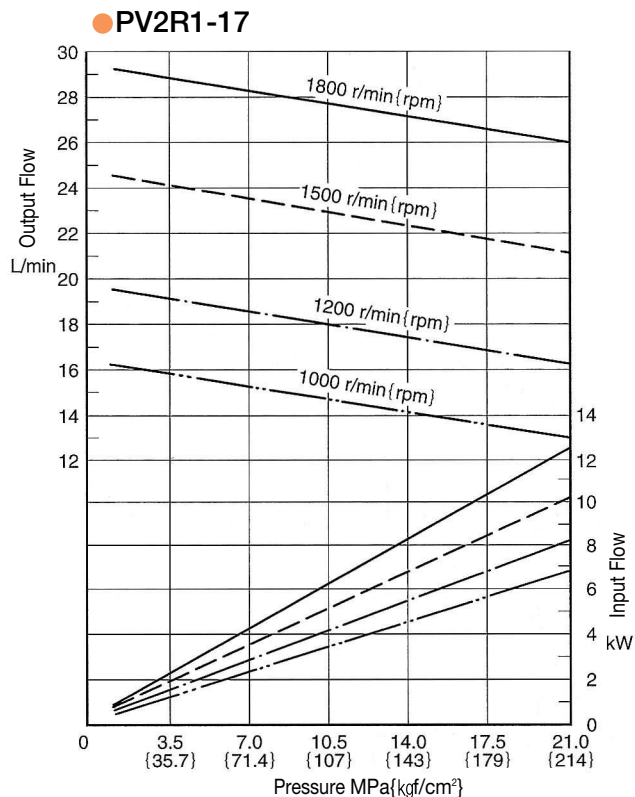
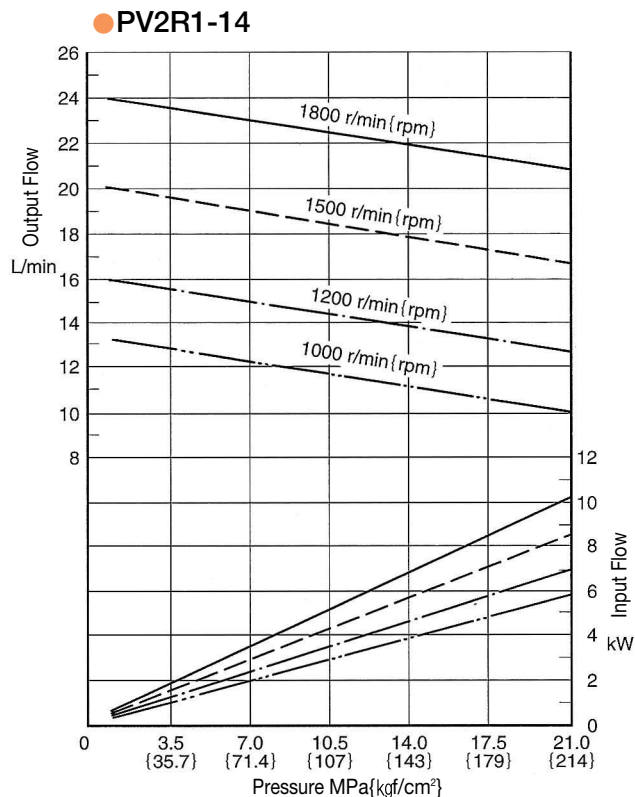


● PV2R1-12



Characteristics

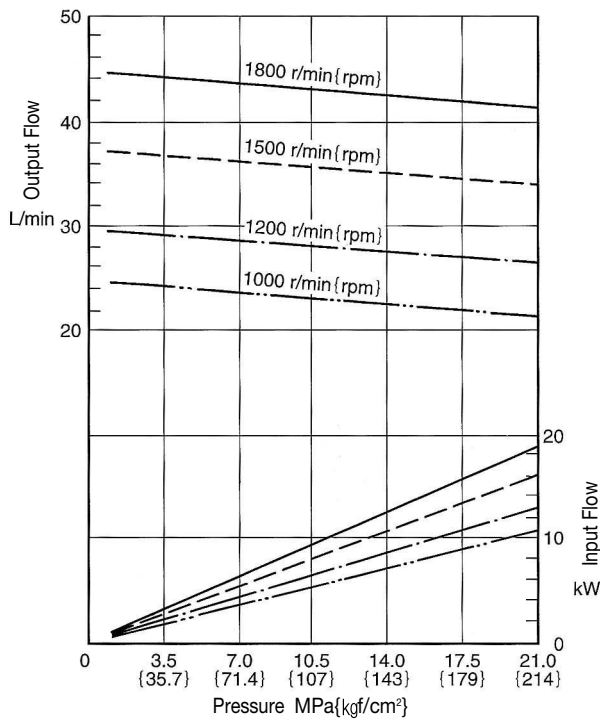
Typical performance characteristics at viscosity 32mm²/s(ISO VG 32 Oil, 50°C)



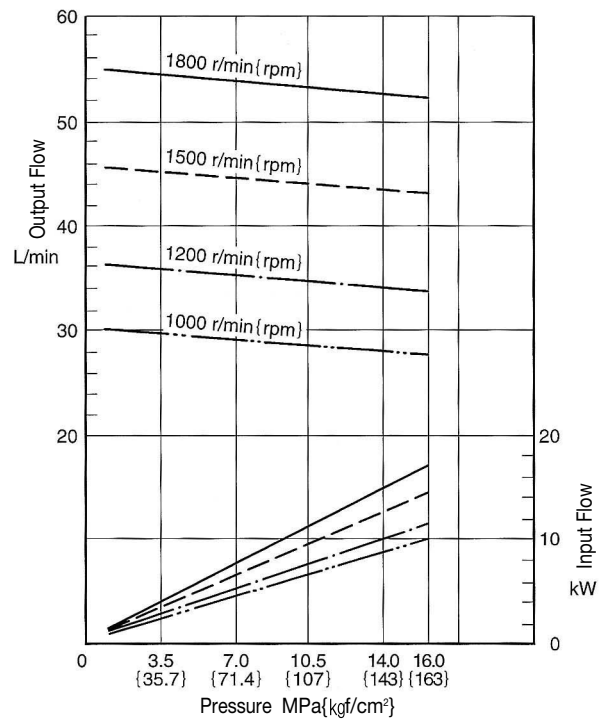
Characteristics

Typical performance characteristics at viscosity 32mm²/s(ISO VG 32 Oil, 50°C)

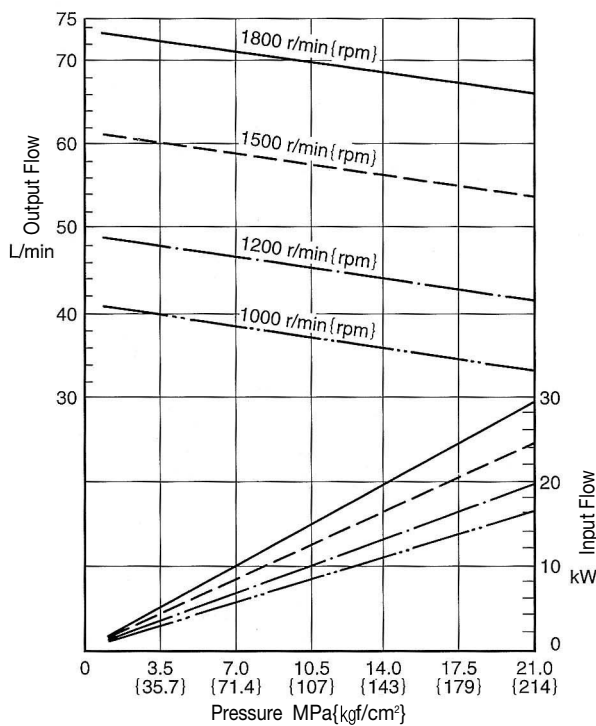
● PV2R1-25



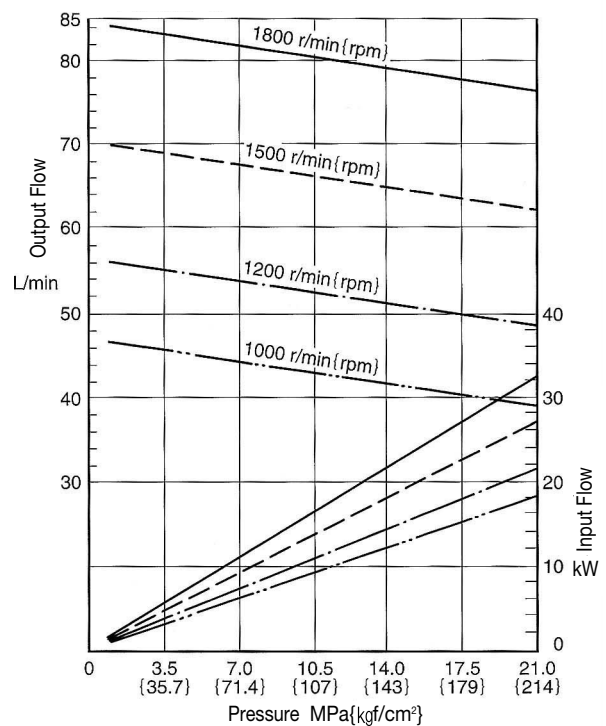
● PV2R1-31



● PV2R2-41

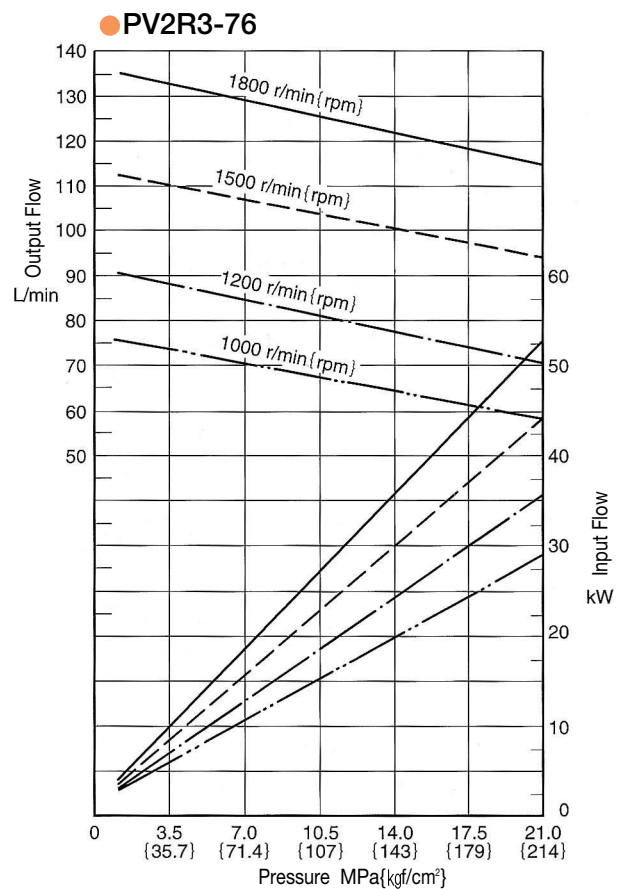
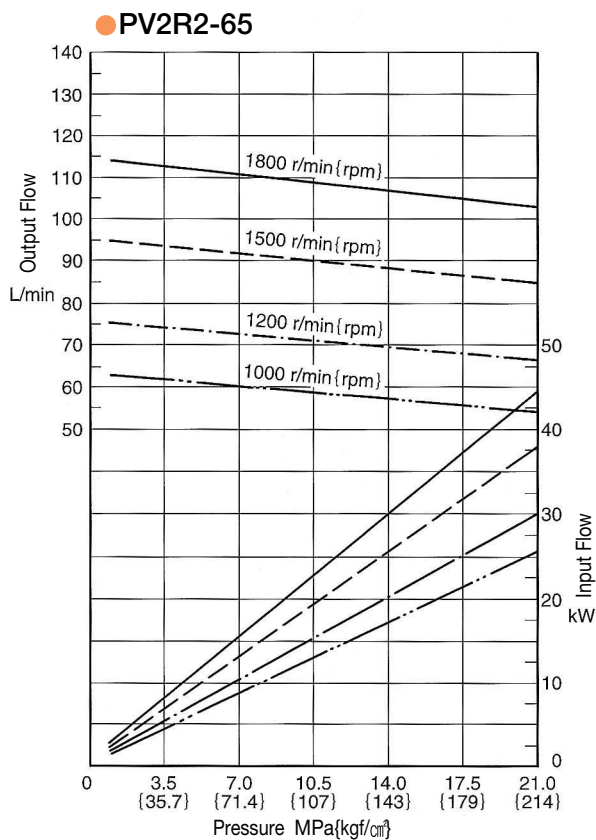
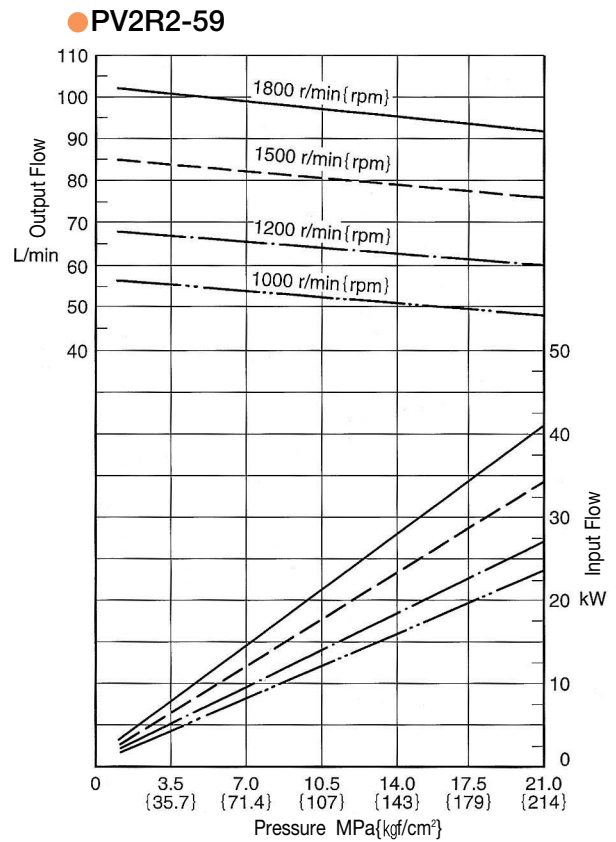
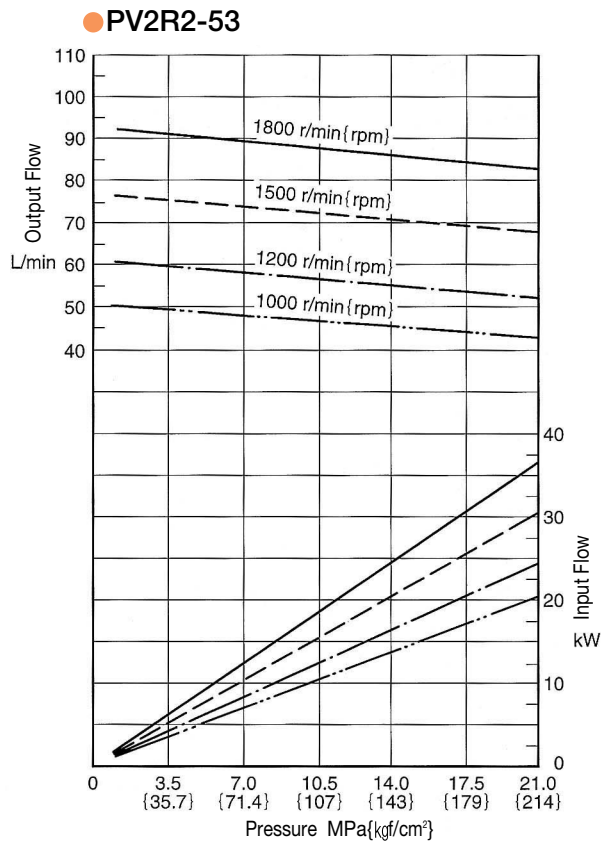


● PV2R2-47



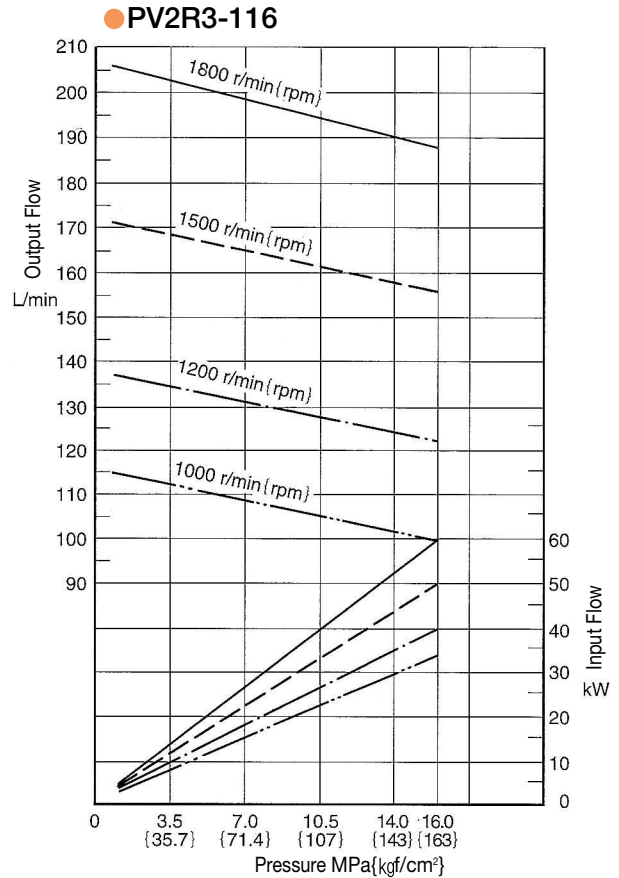
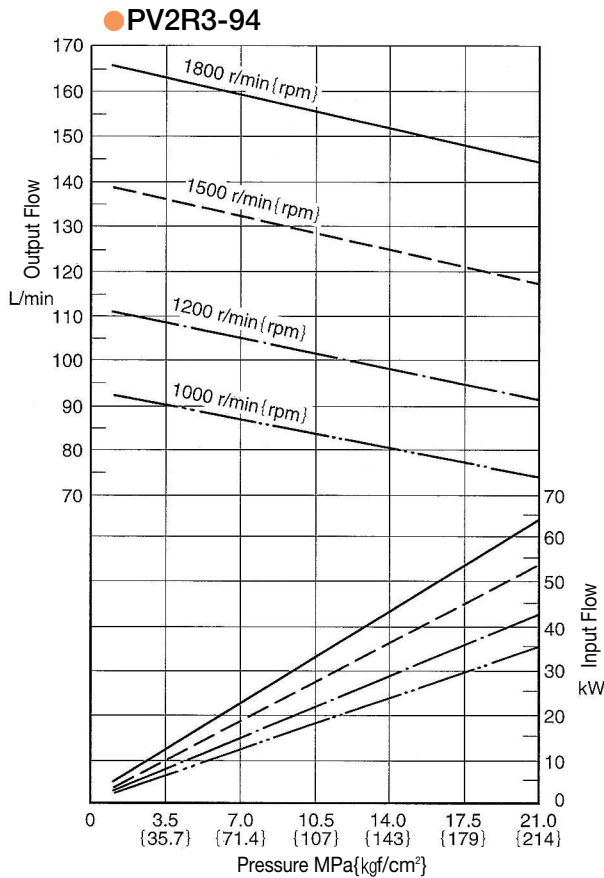
Characteristics

Typical performance characteristics at viscosity 32mm²/s(ISO VG 32 Oil, 50°C)



Characteristics

Typical performance characteristics at viscosity 32mm²/s(ISO VG 32 Oil, 50°C)

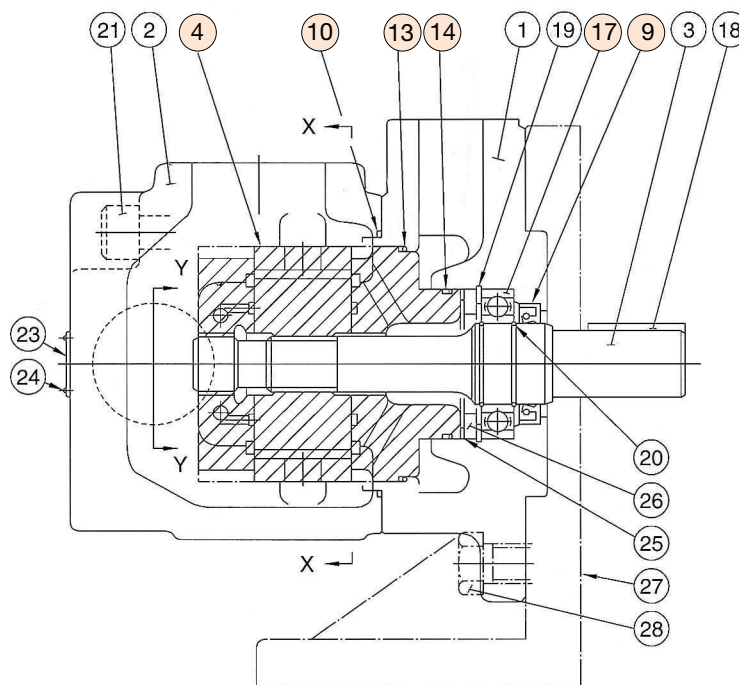




When making replacement of seals, please do it carefully after reading through the relevant instructions in the Operator's Manual.

List of Cartridge Kits, Seals & Bearings

PV2R1
PV2R2
PV2R3



Section X-X

Cartridge Kits

Model Numbers	④ Cartridge Kit Numbers	Model Numbers	④ Cartridge Kit Numbers
PV2R1- 6- ※-RAA-41	CPV2R1- 6-R-41	PV2R2- 41- ※-RAA-41	CPV2R2- 41-R-41
PV2R1- 8- ※-RAA-41	CPV2R1- 8-R-41	PV2R2- 47- ※-RAA-41	CPV2R2- 47-R-41
PV2R1-10- ※-RAA-41	CPV2R1-10-R-41	PV2R2- 53- ※-RAA-41	CPV2R2- 53-R-41
PV2R1-12- ※-RAA-41	CPV2R1-12-R-41	PV2R2- 59- ※-RAA-41	CPV2R2- 59-R-41
PV2R1-14- ※-RAA-41	CPV2R1-14-R-41	PV2R2- 65- ※-RAA-41	CPV2R2- 65-R-41
PV2R1-17- ※-RAA-41	CPV2R1-17-R-41	PV2R3- 76- ※-RAA-31	CPV2R3- 76-R-31
PV2R1-19- ※-RAA-41	CPV2R1-19-R-41	PV2R3- 94- ※-RAA-31	CPV2R3- 94-R-31
PV2R1-23- ※-RAA-41	CPV2R1-23-R-41	PV2R3-116- ※-RAA-31	CPV2R3-116-R-31
PV2R1-25- ※-RAA-41	CPV2R1-25-R-41		
PV2R1-31- ※-RAA-41	CPV2R1-31-R-41		

Seals & Bearings

Item	Name of Parts	Part Numbers			Qty
		PV2R1	PV2R2	PV2R3	
9	Oil Seal	ISD 26 42 8	ISD 30 42 8	ISD 35 55 11	1
10	O-Ring	JIS B 2401-1B-G80	JIS B 2401-1B-G105	JIS B 2401-1B-G135	1
13	O-Ring	JIS B 2401-1B-G60	JIS B 2401-1B-G85	JIS B 2401-1B-G115	1
14	O-Ring	JIS B 2401-1B-G30	JIS B 2401-1B-P46	AS 568-231 (NBR, Hs90)	1
17	Bearing	6004	6205	6207	1

Note) 1. Item Nos. ⑬ and ⑭ (o-rings) are included in cartridge kit.

2. For pumps for phosphate ester type hydraulic fluids different part Nos. Please contact us.