B

VANE PUMPS

	Pump Type	Graphic Symbols	Output Flow at 1200 r/min at No-Load L/min (1 2 5 10 20 50 100 200 500 1000)	Maximum Operating Pressure MPa	Page
Fixed Displacement	Single Pumps		50T 150T	7	B-5
	"PV2R" Series Single Pumps		PV2R1 PV2R2 PV2R3 PV2R4	21	B-6
	"PV2R" Series Double Pumps		Small Volume (PV2R1) (PV2R2) (PV2R3) / Large Volume (PV2R2) (PV2R3) (PV2R4)	21	B-18

● The following pumps can also be supplied.

"PV2R4A" Single Pumps
"PV2R24A/PV2R34A" Double Pumps
Consult Yuken for details.

Caution :

In the case of Water Glycol fluid, a slight oil leak occurs from the shaft seal part.
(Criterion : 500ml / 6 months of oil leakages.)
Please install a tray appropriate capacity on the pump-base.

Hydraulic Fluids

Type of Hydraulic Fluids

Any type of hydraulic fluids listed in the Table 1 below can be used. However, the specifications of the pumps such as maximum pressure and 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.

Hydraulic Fluids

(Table 1)

Type of Fluids		Single Pumps	"PV2R" Series Single Pumps "PV2R" Series Double Pumps
Petroleum Base Oils		Use anti-wear type oils or R & O (Rust and Oxidation inhibitor) type oils (equivalent to ISO VG32 or 46)	
Synthetic Fluids		Use phosphate ester type fluids. When phosphate ester type fluid is used, prefix "F-" to the model number because the special seals (fluororubber) are required to be used.	
Water Containing Fluids	Water-Glycols	Consult Yuken for details.	Standard pumps can be used without conditions. However, if any type other than those in Table 2 is used, the maximum operating pressure is limited.

Anti-Wear Type Water-Glycols

(Table 2)

Fluid Manufacturer	Commercial Trade Name
Shell Lubricants Japan K.K.	Shell HFC Fluid
ENEOS Corporation	HIGHLAND FRZ 46
MORESCO Corporation	HYDOL HAW
COSMO OIL LUBRICANTS Co.,Ltd.	COSMO FLUID GS 46 COSMO FLUID HQ 46

Fluid Viscosity and Temperature

Use the hydraulic fluids which satisfy the recommended viscosity and oil temperature given in the Table 3 below.
However, please note that if any of the pumps listed in the table 4 is started at low speed, the maximum fluid viscosity is limited.

Fluid Viscosity and Temperature

(Table 3)

Fluid	Temperature °C	Viscosity mm²/s
Petroleum Base Oils	0-70	20-400
Phosphate Esters		
Water-Glycols	0-50	

Maximum Viscosity for Low Start-up Speed

(Table 4)

Pump Type	Start-up Speed r/min	Max. Viscosity mm²/s
PV2R1, PV2R12 PV2R13	750	100
	950	200
50T, PV2R2	600	100
PV2R23	950	200

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 100 μm tank filter on the suction side, more than 50 mm away from the tank bottom.

Instructions

Alignment of Shaft

Employ a flexible coupling whenever possible, and avoid any stress from bending or thrust.
Maximum permissible misalignment is less than 0.1 mm TIR and maximum permissible misangular is less than 0.2°.

Suction Pressure

Set the suction pressure at pump inlet port at the value given in the table below. Furthermore, use the pipes in the suction side having the diameter as indicated on the installation drawings. In case where the pump is installed on the tank or at the position higher than the tank top cover, the height of the suction port of the pump should be less than 1 meter from the oil level {less than 0.8 meter in case of using phosphate esters or water containing fluids}.

Pump Type		Suction Pressure		
		Minimum		Maximum
		Petroleum Base Oils	Phosphate Esters Water Containing Fluid	
Single Pumps	50T, 150T	−20 kPa	−16 kPa	+140 kPa
"PV2R" Series Single Pumps	PV2R1, PV2R2	−20 kPa	−16 kPa	+30 kPa
	PV2R3, PV2R4	−20 kPa ★		
"PV2R" Series Double Pumps	PV2R12	−20 kPa		
	PV2R13, PV2R23	−20 kPa ★		

★ In relation to the rotating speed of the pump, the minimum suction pressure may be restricted for a certain nominal displacement. For details, please refer to the specifications of the pump concerned.

Precautions at Starting

At an initial operation or at an 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), 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 item of "Hydraulic Fluids".

Other Precautions

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

Interchangeability in Installation between Current and New Design

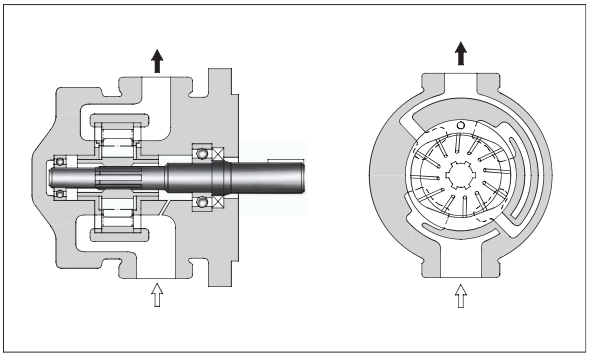
The models shown below have been changed in design.

Name	Model Numbers		Interchangeability in Installation	Major Changes
	Current	New		
"PV2R1" Series Single Pumps	PV2R1–*–*–RAA–4222	PV2R1–*–*–RAA–43	Yes	● Change only design number
"PV2R2" Series Single Pumps	PV2R2–*–*–RAA–40	PV2R2–*–*–RAA–41	Yes	● Lower noise level
"PV2R3" Series Single Pumps	PV2R3–*–*–RAA–30	PV2R3–*–*–RAA–31	Yes	● Lower noise level
"PV2R12" Series Double Pumps	PV2R12–*–*–*–REAA–4222	PV2R12–*–*–*–REAA–43	Yes	● Change only design number
"PV2R13" Series Double Pumps	PV2R13–*–*–*–RAAA–4222	PV2R13–*–*–*–RAAA–43	Yes	
"PV2R14" Series Double Pumps	PV2R14–*–*–*–RAAA–3222	PV2R14–*–*–*–RAAA–33	Yes	
"PV2R23" Series Double Pumps	PV2R23–*–*–*–REAA–40	PV2R23–*–*–*–REAA–41	Yes	● Lower noise level
"PV2R33" Series Double Pumps	PV2R33–*–*–*–RAAA–30	PV2R33–*–*–*–RAAA–31	Yes	
"PV2R24" Series Double Pumps	PV2R24–*–*–*–RAAA–30	PV2R24–*–*–*–RAAA–31	Yes	
"PV2R34" Series Double Pumps	PV2R34–*–*–*–REAA–30	PV2R34–*–*–*–REAA–31	Yes	

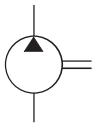
Single Vane Pumps

Offering stable performance and a wide range of output flow rates, it is widely used as a hydraulic actuation source.





Graphic Symbol



Specifications

Model Numbers	Geometric Displacement cm³/rev	Max. Operating Pressure MPa			Shaft Speed Range r/min		Approx. Mass kg	
		Petroleum Base Oils		Synthetic Fluids				
		Anti-Wear Type	R & O Type	Phosphate Esters	Max.	Min.	Foot Mtg.	Flange Mtg.
50T– 7	6.8	7	7	7	2000 ★	800	10.5	9.0
50T–12	11.6					600		
50T–17	16.5				1800 ★			
50T–23	22.9							
50T–26	25.9							
50T–36	36.0							
150T– 48	47.7	7	7	7	1500 ★	600	26	25
150T– 61	61.1							
150T– 75	74.9							
150T– 94	93.6				1200			
150T–116	115.6							

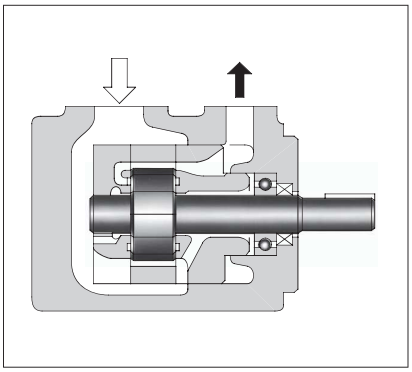
★ If phosphate esters are used, the maximum speed is limited to 1200 r/min.

● Consult Yuken for Single Vane Pump details.

"PV2R" Series Single Vane Pumps

These pumps are of high pressure and high performance, which have been developed especially for low noise operation.
To comply with a variety of applications including injection moulding machines, PV2R series single pumps provide the output flow of such a wide range as from 5.8 to 237 cm³/rev.
The intergral driving parts of the pumps are combined into a kit form and available for supply as a cartridge kit. Therefore, the replacement of the driving parts can be done easily.





Graphic Symbol



Model Number Designation

PV2R1	–6	–L	–R	A	A	–43
Series Number	Nominal Displacement cm³/rev	Type of Mounting	Shaft Rotation	Discharge Port Position	Suction Port Position	Design Number
PV2R1 ★2	6, 8, 10, 12, 14, 17, 19, 23, 25, 31	L : Foot Mounting F : Flange Mounting	(Viewed from Shaft End) R : Clockwise ★1 (Normal)	(Viewed from Shaft End) A : Upwards (Normal)	(Viewed from Shaft End) A : Upwards (Normal)	43
PV2R2 ★2	41, 47, 53, 59, 65					41
PV2R3 ★2	76, 94, 116					31
PV2R4 ★2	136, 153, 184, 200, 237					30

★1. Available to supply pump with anti-clockwise rotation. Consult Yuken for details.
★2. When phosphate esters are used, prefix "F-" to the model number because the special seals (fluororubber) are required to be used.

Pipe Flange Kits

Pipe flange kits are not included with the pumps, so please refer to the table below to order them for your use.

Pump Model Numbers	Name of Port	Pipe Flange Kit Numbers		
		Threaded Connection	Socket Welding ★	Butt Welding
PV2R1	Suction	F5–08–A–10	F5–08–B–10	F5–08–C–10
	Discharge	F5–04–A–10	F5–04–B–10	F5–04–C–10
PV2R2	Suction	F5–10–A–10	F5–10–B–10	F5–10–C–10
	Discharge	F5–06–A–10	F5–06–B–10	F5–06–C–10
PV2R3	Suction	F5–16–A–10	F5–16–B–10	F5–16–C–10
	Discharge	F5–10–A–10	F5–10–B–10	F5–10–C–10
PV2R4	Suction	F5–24–A–10	F5–24–B–10	—
	Discharge	F5–12–A–10	F5–12–B–10	F5–12–C–10

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

Notes: When phosphate esters are used, prefix "F-" to the model number.

Specifications

Model Numbers	Geometric Displacement cm^3/rev	Max. Operating Pressure MPa						Output Flow & Input Power	Shaft Speed Range r/min	
		Petroleum Base Oils		Water Containing Fluids			Synthetic Fluids			
		Anti-Wear Type	R & O Type	Anti-Wear Type Water Glycols ★1	Water Glycols	Water in Oil Emulsions	Phosphate Esters		Max.★3	Min.
PV2R1– 6	5.8	21 ★5	16	16	7	7	16	Refer to Pages B-11 - B-13	1800 (1200)	750★4
PV2R1– 8	8.0									
PV2R1–10	9.4	21								
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								
PV2R2–41	41.3	21	14	16	7	7	14	Refer to Pages B-13 - B-14	1800 (1200)	600★4
PV2R2–47	47.2									
PV2R2–53	52.5									
PV2R2–59	58.2									
PV2R2–65	64.7									
PV2R3–76	76.4	21	14	16	7	7	14	Refer to Pages B-14 - B-15	1800 (1200)	600
PV2R3–94	93.6									
PV2R3–116	115.6	16							1800★2 (1200)	
PV2R4–136	136	17.5	14	16	7	7	14	Refer to Pages B-15 - B-16	1800 (1200)	600
PV2R4–153	153									
PV2R4–184	184									
PV2R4–200	201									
PV2R4–237	237								1800★2 (1200)	

Mass

Model Numbers	Approx. Mass kg	
	Flange Mtg.	Foot Mtg.
PV2R1	9.0	11.2
PV2R2	15.5	19.8
PV2R3	30.9	40.9
PV2R4	68.5	93.5

★1. For the brands of anti-wear type water-glycols , see the item of "Hydraulic Fluids" on page B-2.

★2. For PV2R3-116 and PV2R4-237, the minimum suction pressure is limited by the shaft speed range as shown in the table below.

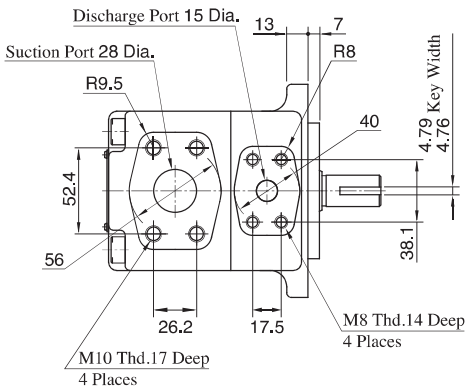
Model Numbers	Min. Suction Pressure MPa	
	Below 1700 r/min	1700 -1800 r/min
PV2R3–116	–20 kPa	0 kPa
PV2R4–237	–20 kPa	–13 kPa

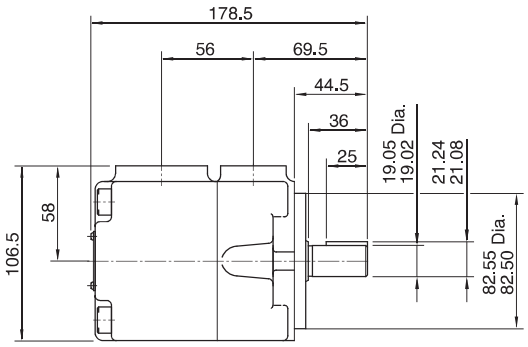
★3. Values in parentheses are for phosphate esters or water containing fluids.

★4. For starting at low speed, the maximum viscosity is limited. For details, see the item of "Hydraulic Fluids" on page B-2.

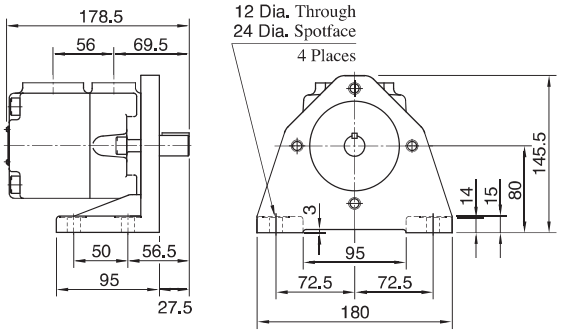
★5. For pressure above 16 MPa, raise the speed over 1450 r/min.

Flange Mtg.: PV2R1-*-F

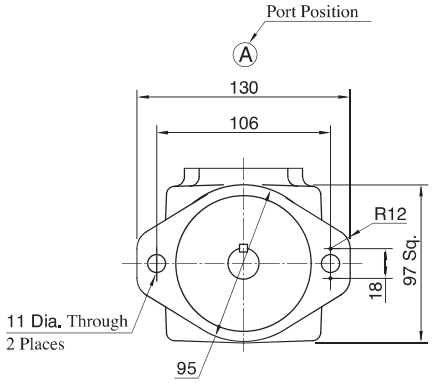




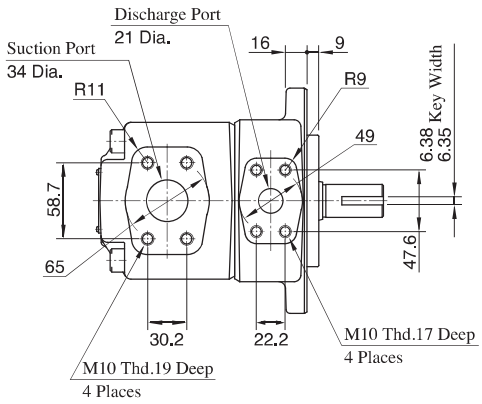
Foot Mtg.: PV2R1-*-L

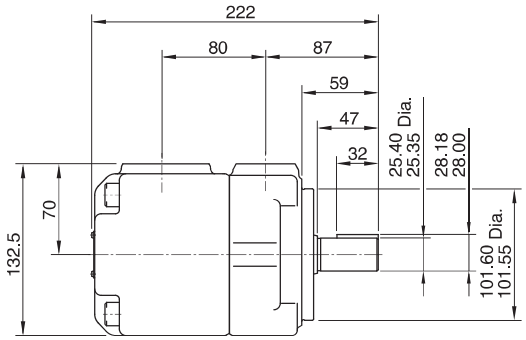


For other dimensions, refer to "Flange Mtg."

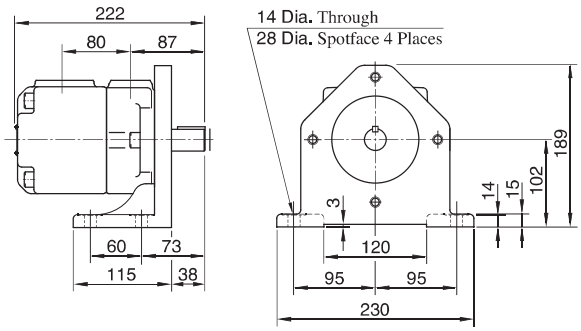


Flange Mtg.: PV2R2-*-F

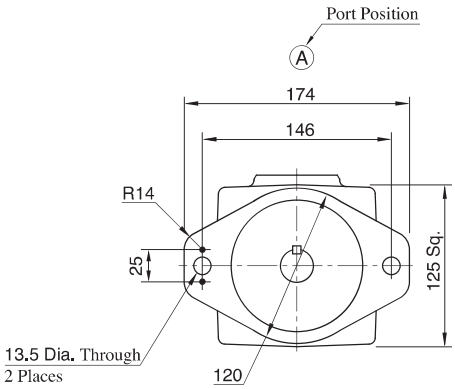




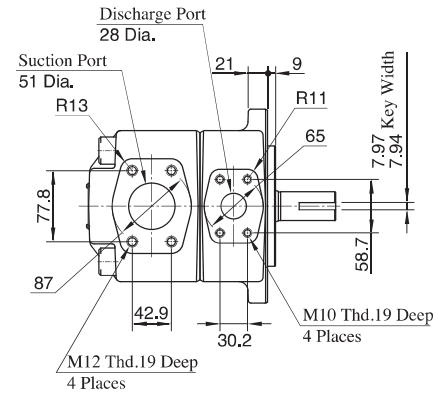
Foot Mtg.: PV2R2-*-L

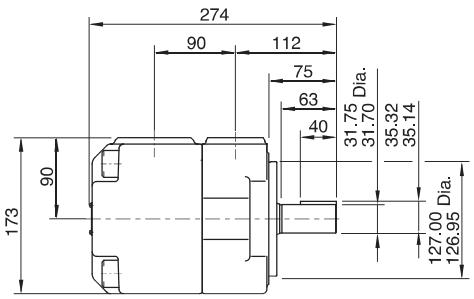


For other dimensions, refer to "Flange Mtg."

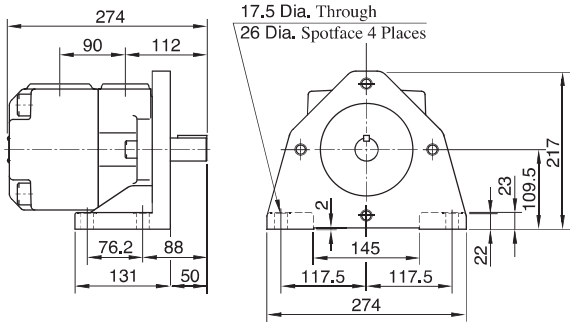


Flange Mtg.: PV2R3-*-F

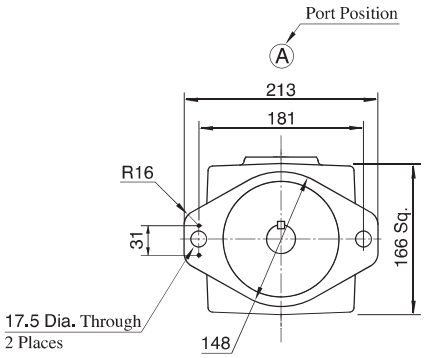




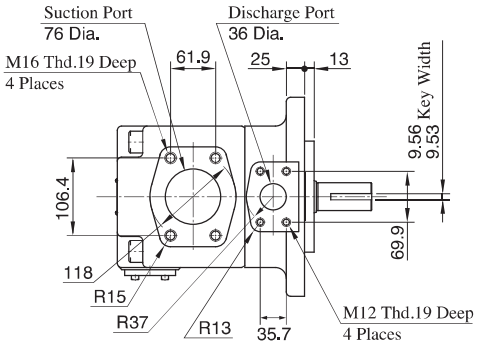
Foot Mtg.: PV2R3-*-L

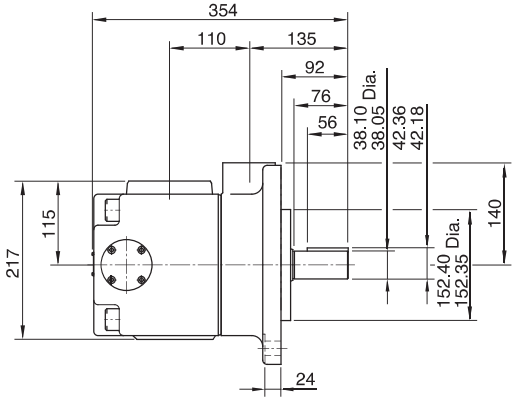


For other dimensions, refer to "Flange Mtg."

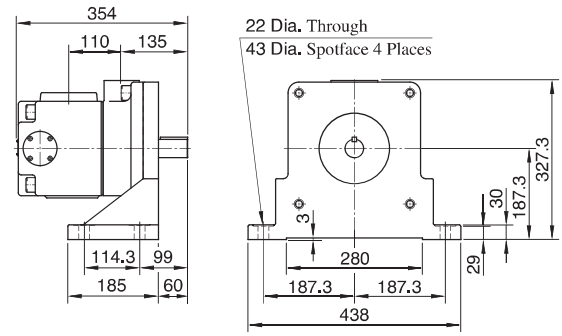


Flange Mtg.: PV2R4-*-F

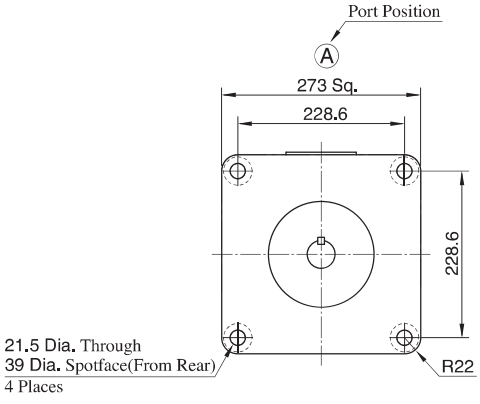




Foot Mtg.: PV2R4-*-L



For other dimensions, refer to "Flange Mtg."



Noise Level

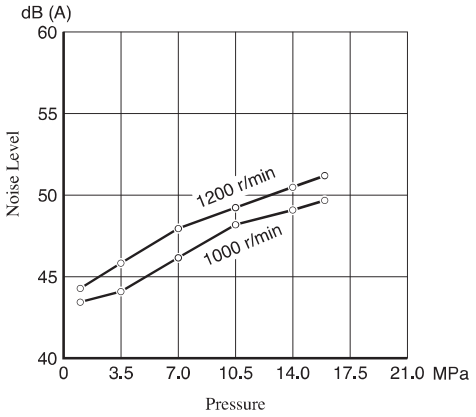
Measuring Conditions

Fluid Viscosity : 20 mm² /s

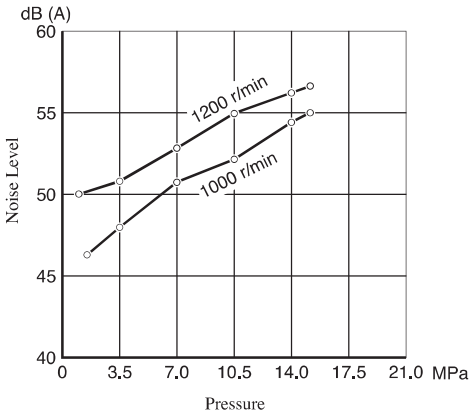
Measurement Point : One meter horizontally away from pump

Back Ground Noise : 40 dB (A)

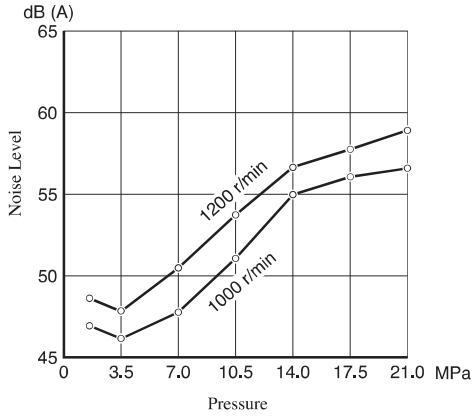
PV2R1-6



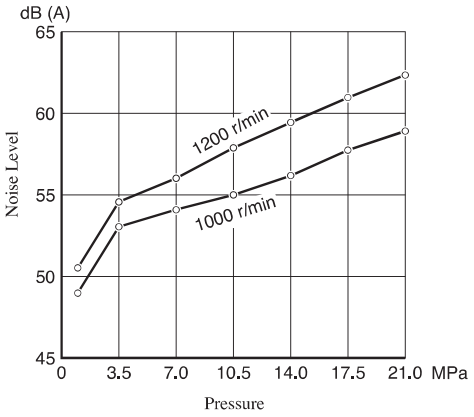
PV2R1-31



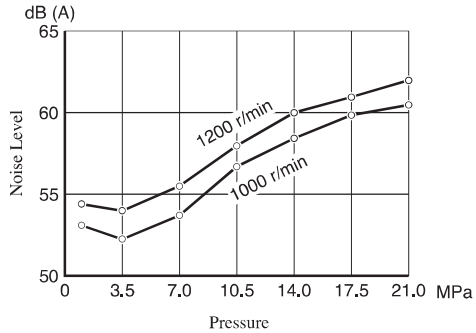
PV2R2-41



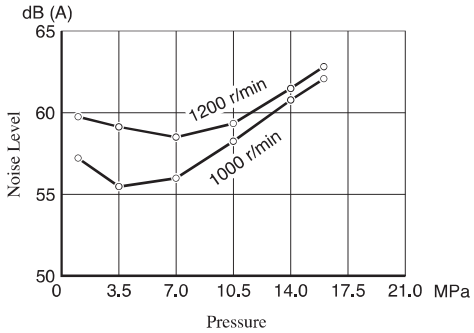
PV2R2-65



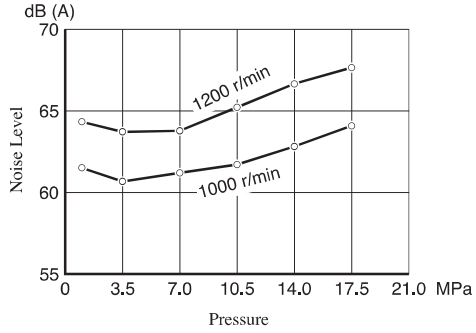
PV2R3-76



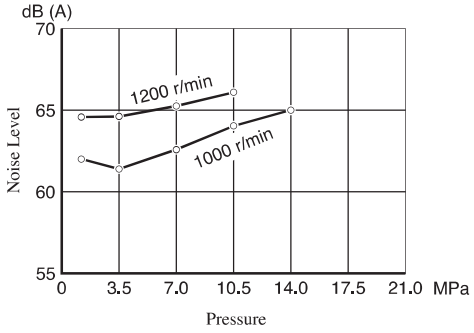
PV2R3-116



PV2R4-136



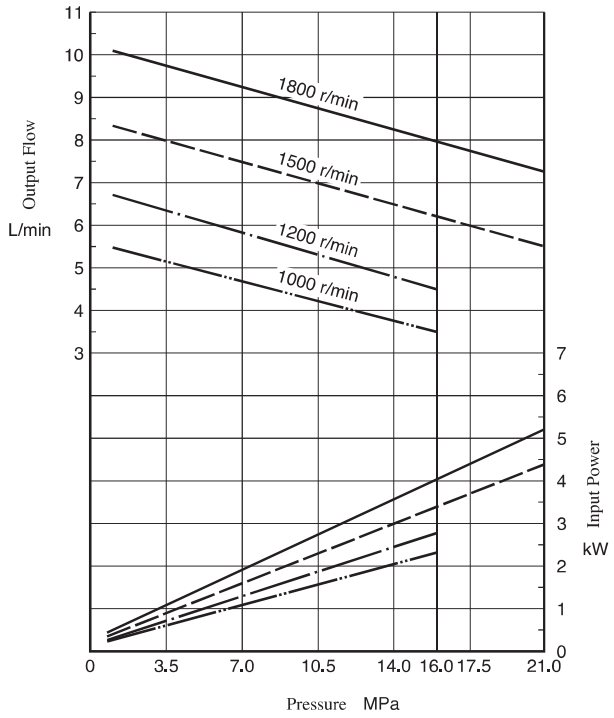
PV2R4-237



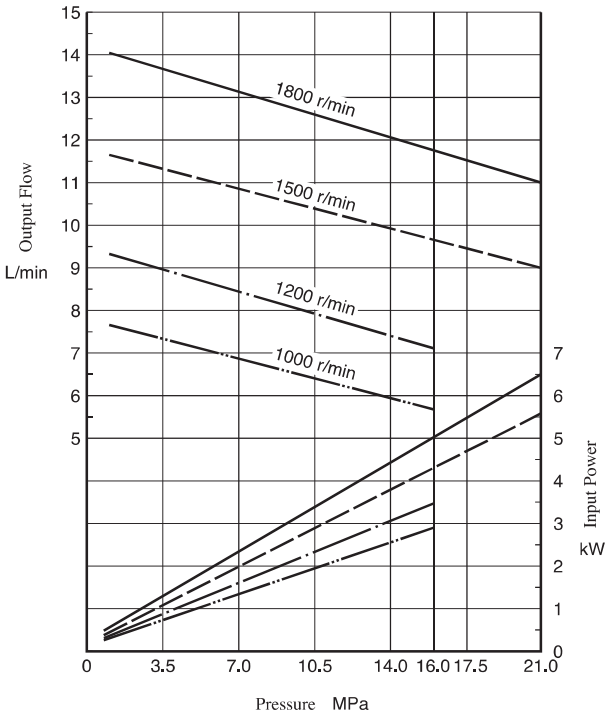
Pressure, Output Flow, and Input Power

Typical Pump Characteristics at Viscosity 20 mm²/s [ISO VG32 Oils, 50°C]

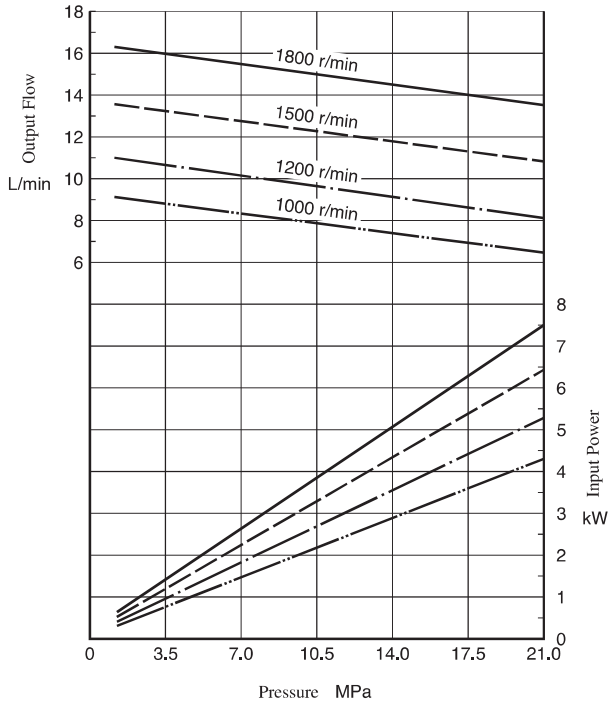
PV2R1-6



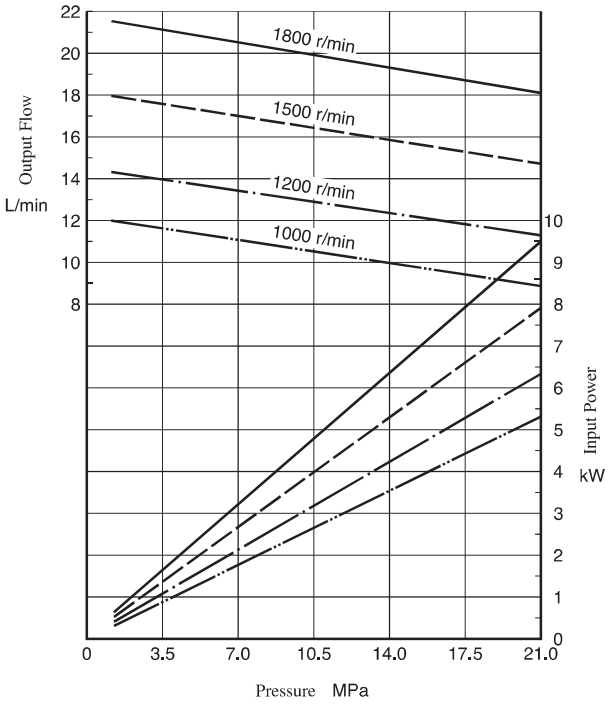
PV2R1-8



PV2R1-10



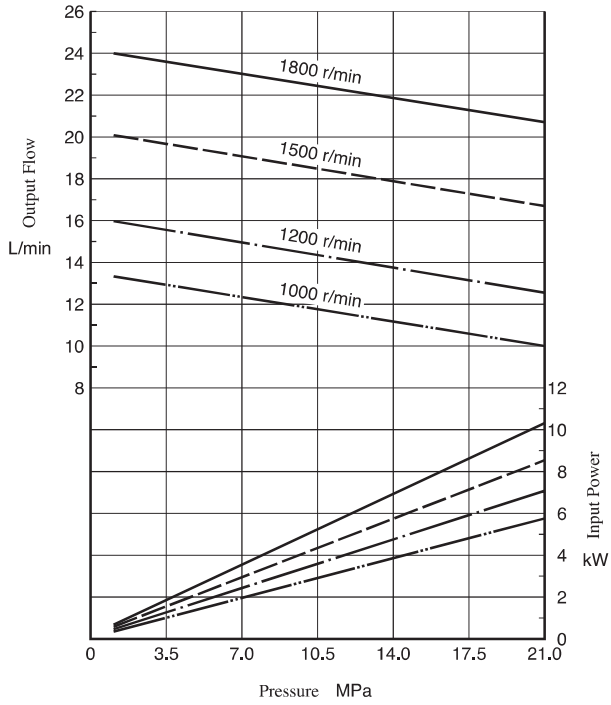
PV2R1-12



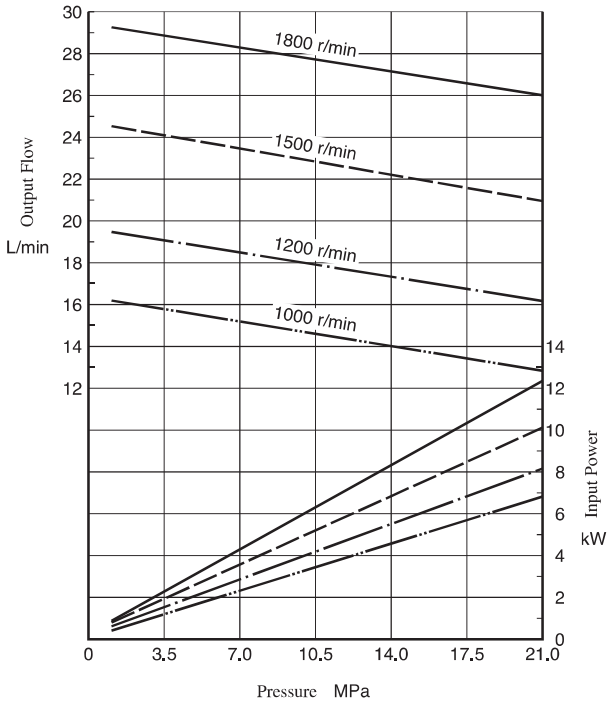
Pressure, Output Flow, and Input Power

Typical Pump Characteristics at Viscosity 20 mm²/s [ISO VG32 Oils, 50°C]

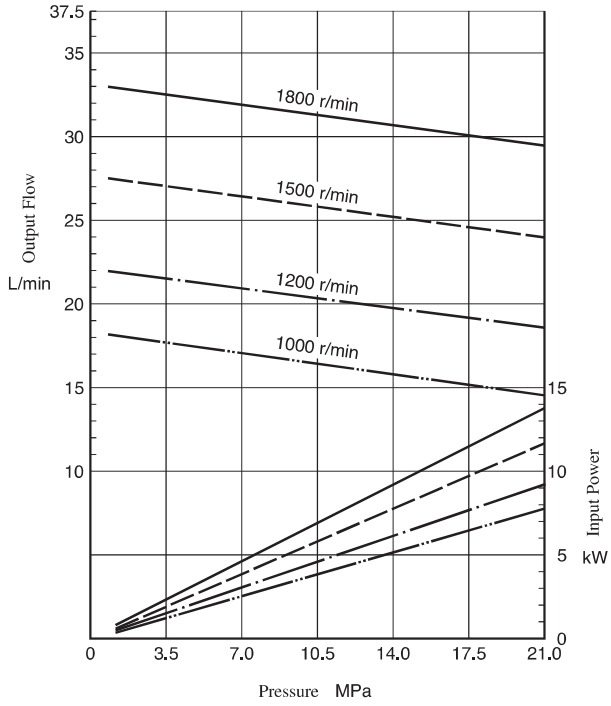
● PV2R1-14



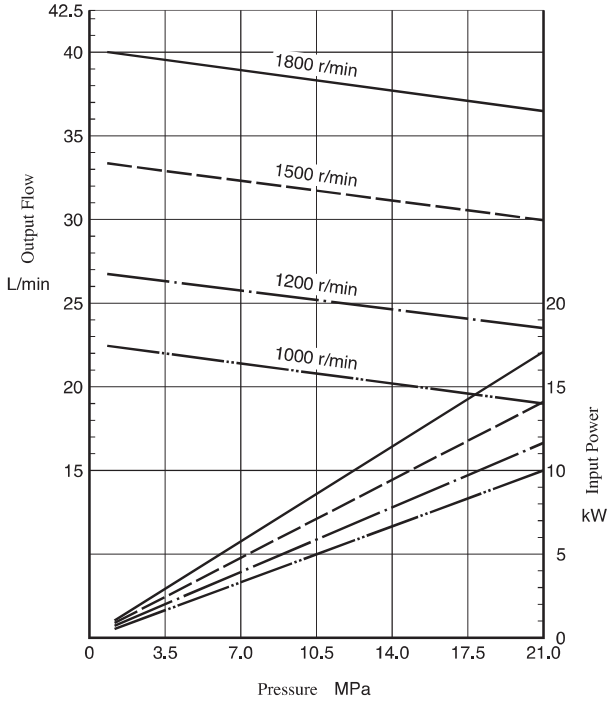
● PV2R1-17



● PV2R1-19



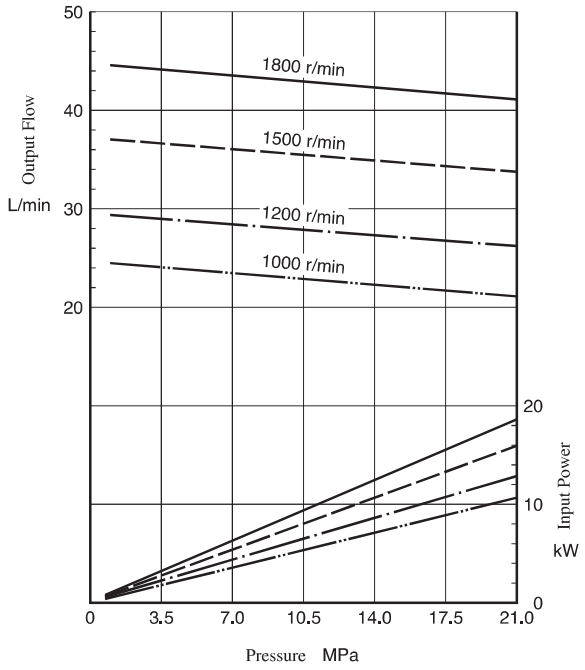
● PV2R1-23



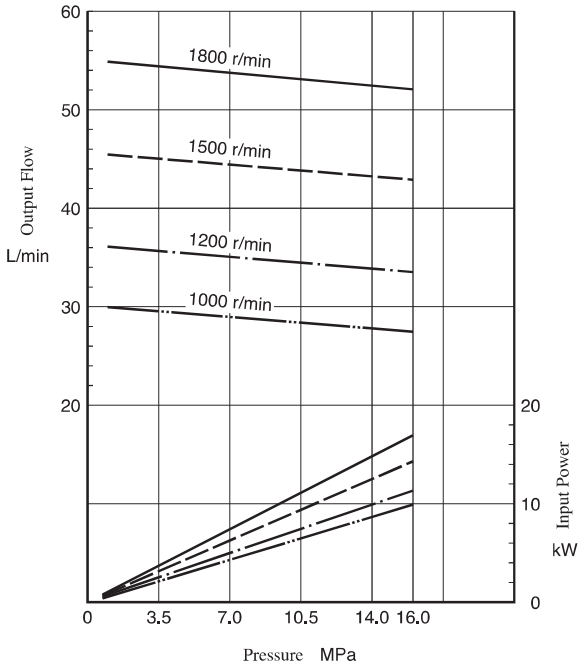
Pressure, Output Flow, and Input Power

Typical Pump Characteristics at Viscosity 20 mm²/s [ISO VG32 Oils, 50°C]

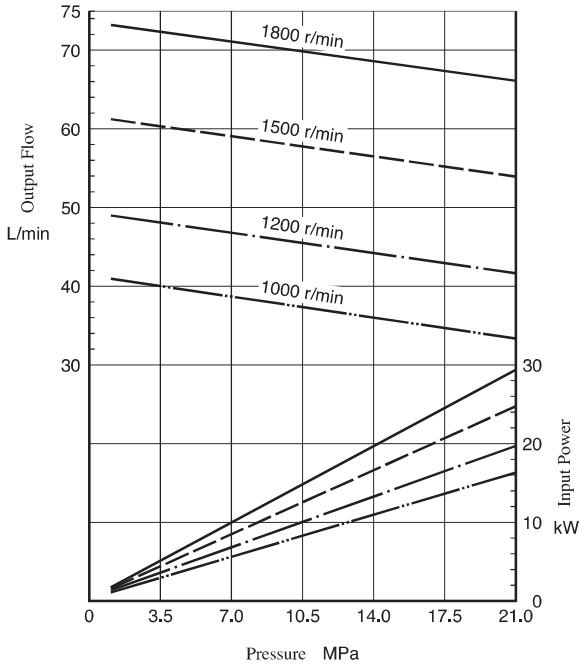
PV2R1-25



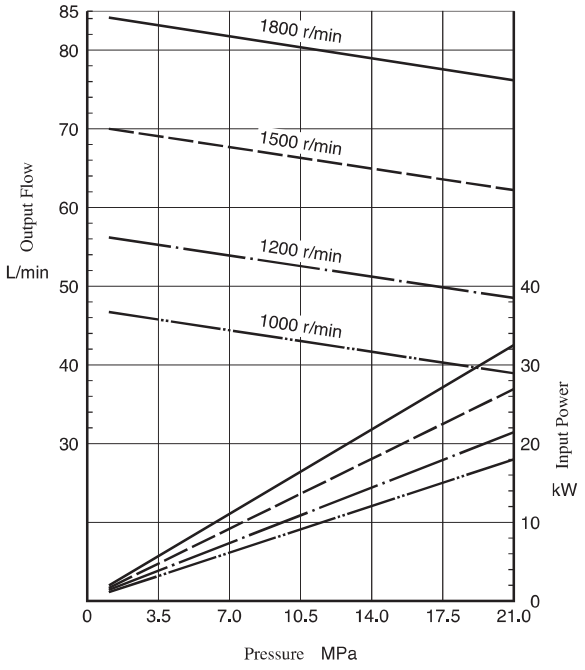
PV2R1-31



PV2R2-41



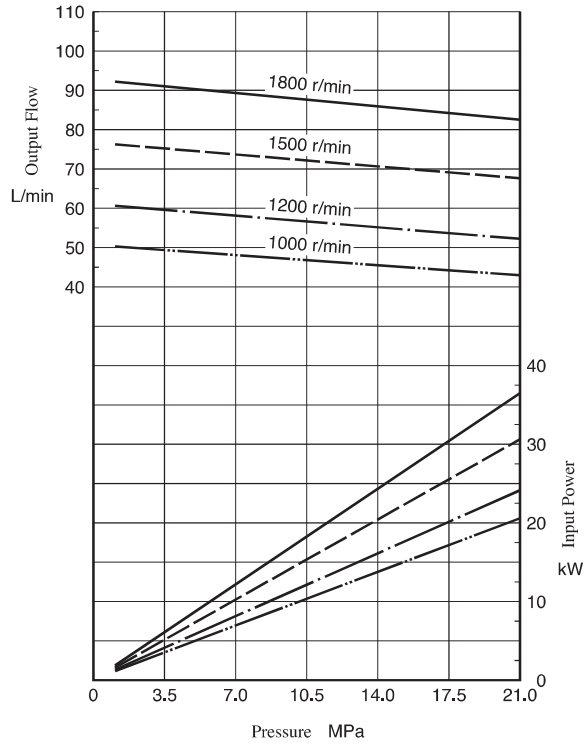
PV2R2-47



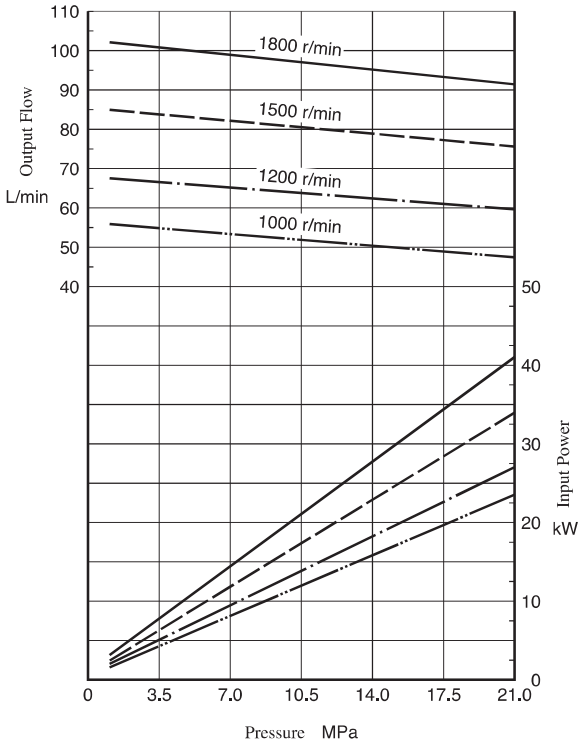
Pressure, Output Flow, and Input Power

Typical Pump Characteristics at Viscosity 20 mm²/s [ISO VG32 Oils, 50°C]

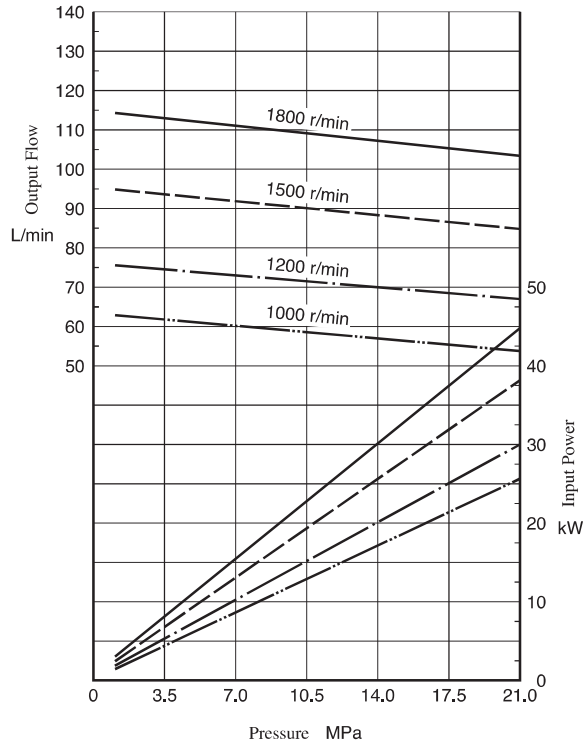
PV2R2-53



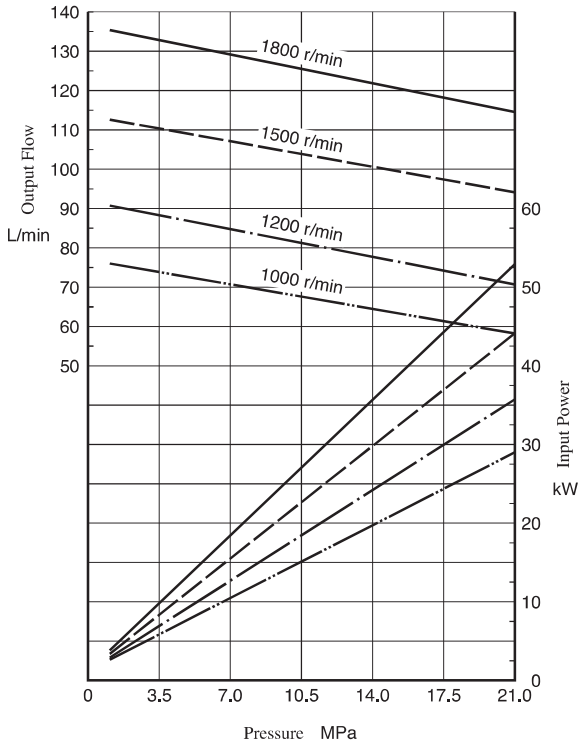
PV2R2-59



PV2R2-65



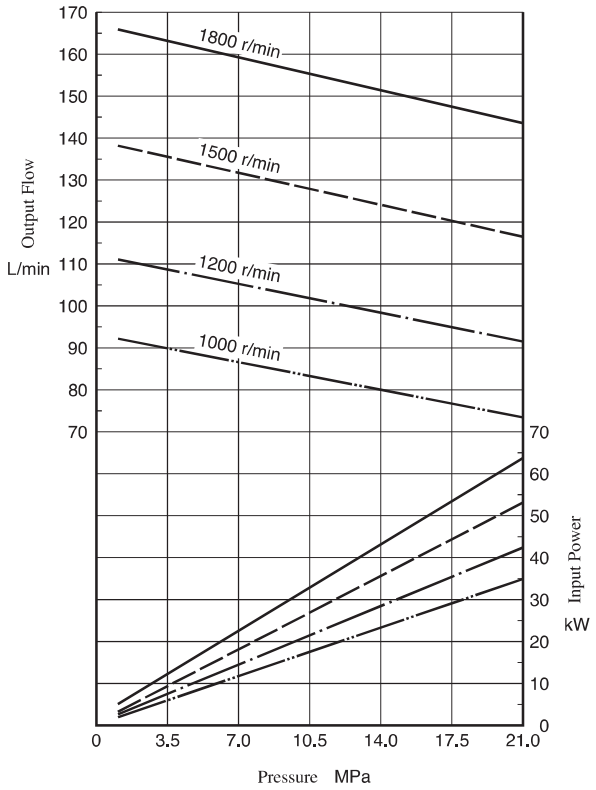
PV2R3-76



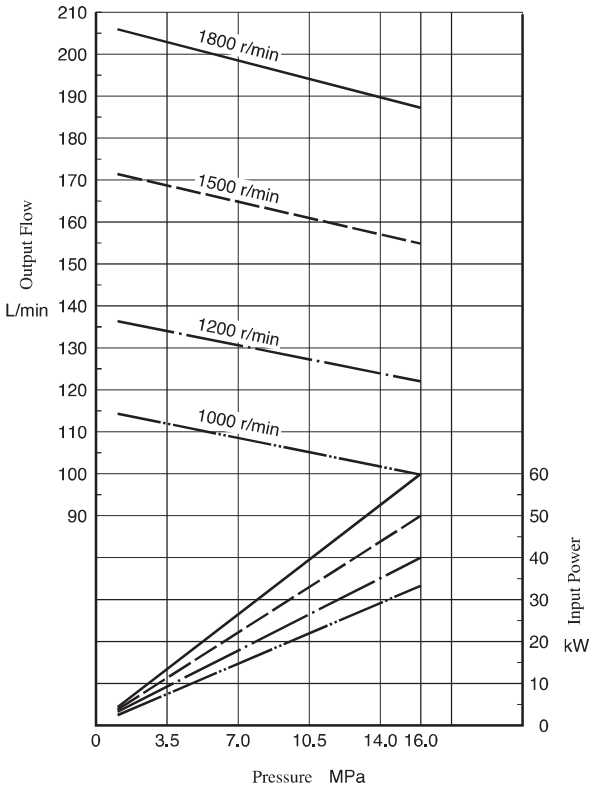
Pressure, Output Flow, and Input Power

Typical Pump Characteristics at Viscosity 20 mm²/s [ISO VG32 Oils, 50°C]

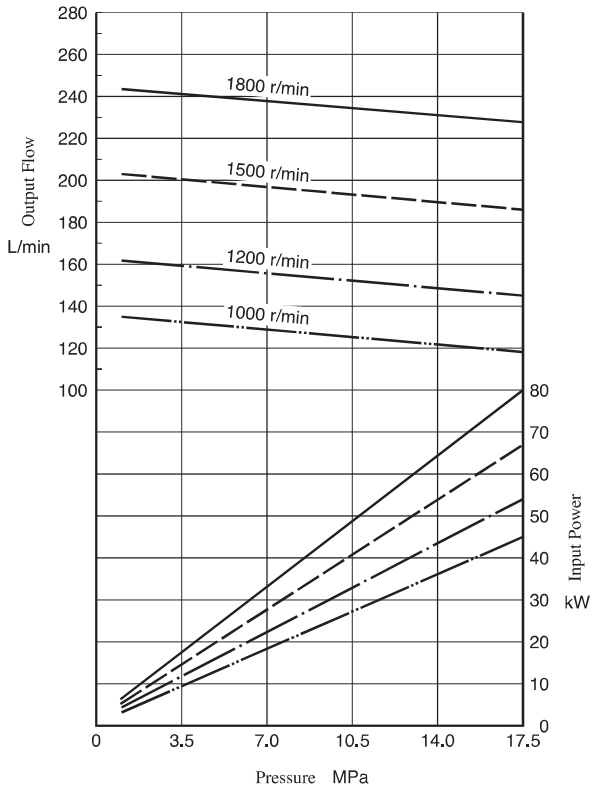
PV2R3-94



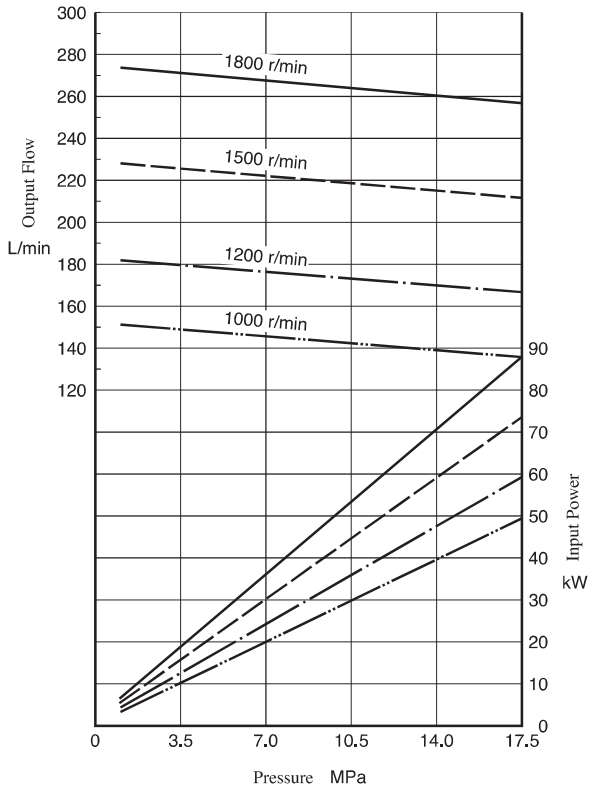
PV2R3-116



PV2R4-136



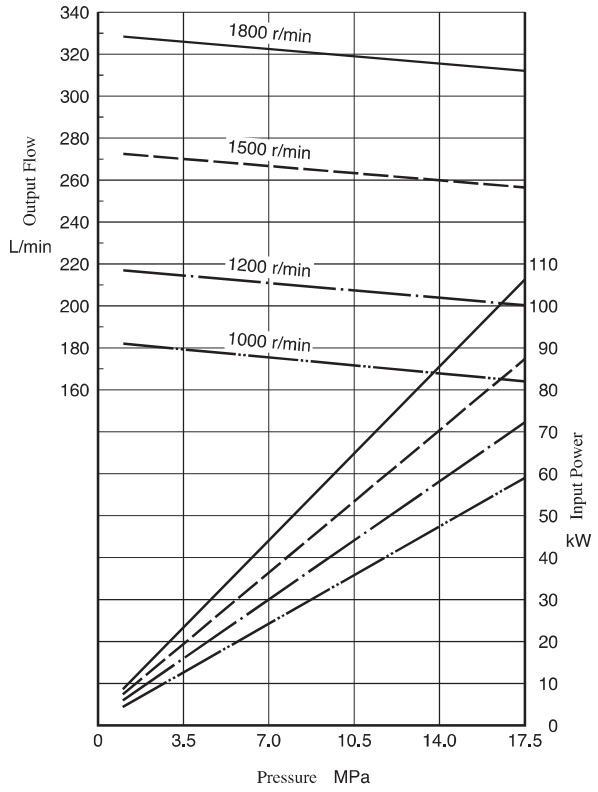
PV2R4-153



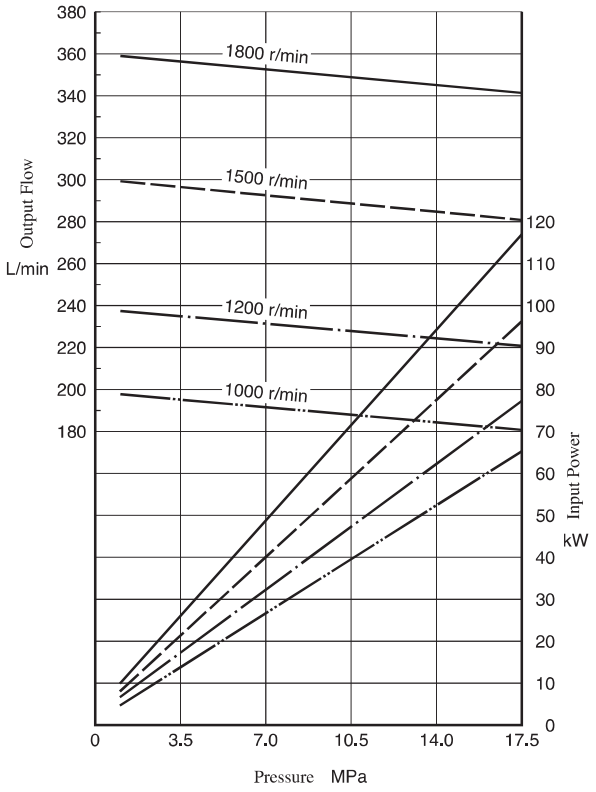
Pressure, Output Flow, and Input Power

Typical Pump Characteristics at Viscosity 20 mm²/s [ISO VG32 Oils, 50°C]

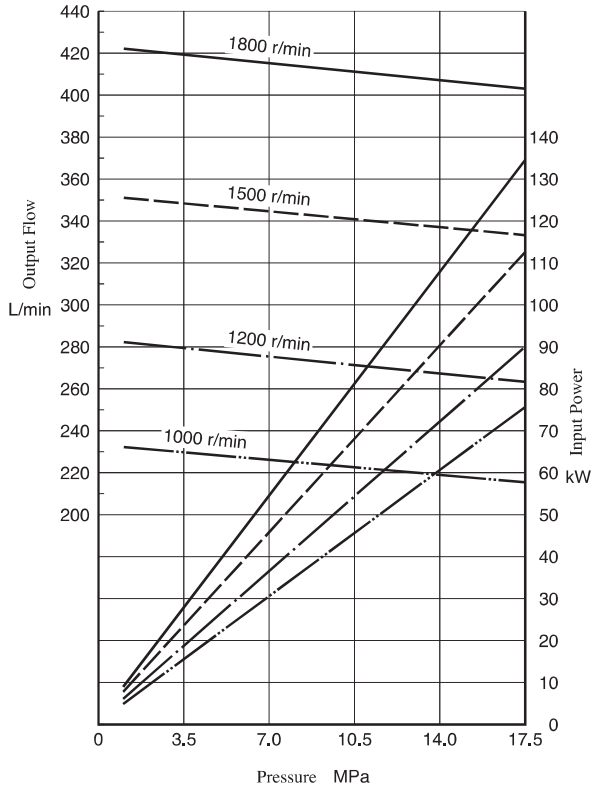
PV2R4-184



PV2R4-200

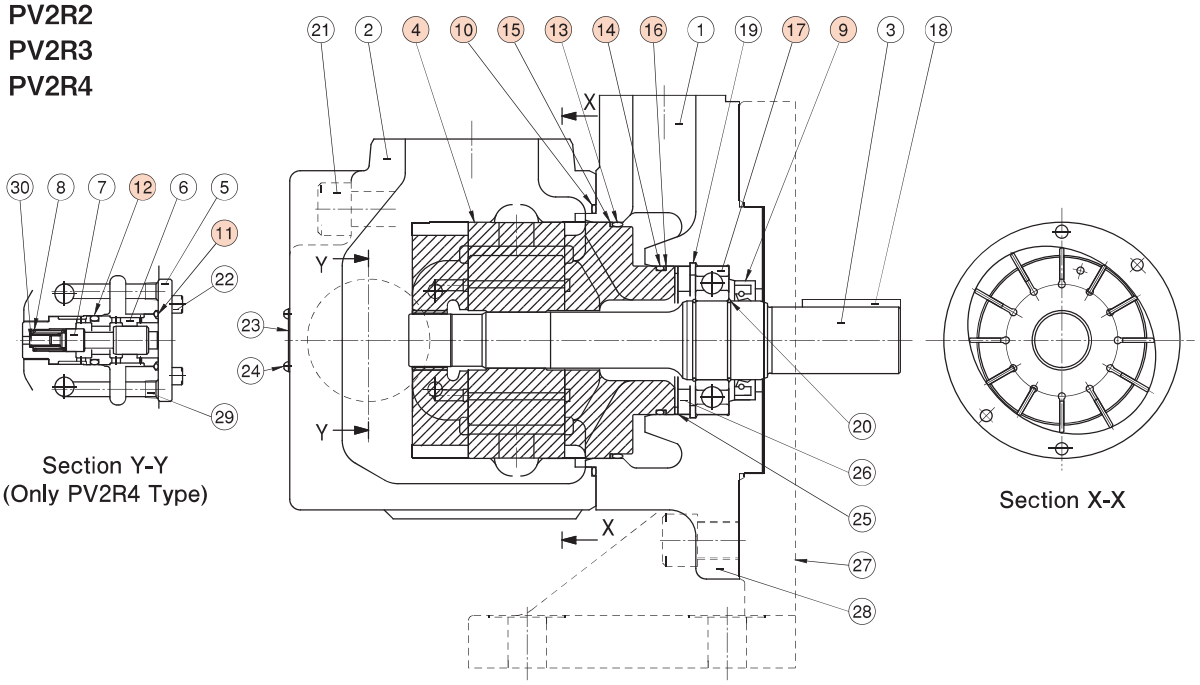


PV2R4-237



Spare Parts List

PV2R1
PV2R2
PV2R3
PV2R4



Section Y-Y
(Only PV2R4 Type)

Section X-X

Cartridge Kits

Model Numbers	④Cartridge Kit Numbers	Model Numbers	④Cartridge Kit Numbers
PV2R1– 6–*–RAA–43	CPV2R1– 6–R–43	PV2R2– 41–*–RAA–41	CPV2R2– 41–R–41
PV2R1– 8–*–RAA–43	CPV2R1– 8–R–43	PV2R2– 47–*–RAA–41	CPV2R2– 47–R–41
PV2R1–10–*–RAA–43	CPV2R1–10–R–43	PV2R2– 53–*–RAA–41	CPV2R2– 53–R–41
PV2R1–12–*–RAA–43	CPV2R1–12–R–43	PV2R2– 59–*–RAA–41	CPV2R2– 59–R–41
PV2R1–14–*–RAA–43	CPV2R1–14–R–43	PV2R2– 65–*–RAA–41	CPV2R2– 65–R–41
PV2R1–17–*–RAA–43	CPV2R1–17–R–43	PV2R3– 76–*–RAA–31	CPV2R3– 76–R–31
PV2R1–19–*–RAA–43	CPV2R1–19–R–43	PV2R3– 94–*–RAA–31	CPV2R3– 94–R–31
PV2R1–23–*–RAA–43	CPV2R1–23–R–43	PV2R3–116–*–RAA–31	CPV2R3–116–R–31
PV2R1–25–*–RAA–43	CPV2R1–25–R–43	PV2R4–136–*–RAA–30	CPV2R4–136–R–30
PV2R1–31–*–RAA–43	CPV2R1–31–R–43	PV2R4–153–*–RAA–30	CPV2R4–153–R–30
		PV2R4–184–*–RAA–30	CPV2R4–184–R–30
		PV2R4–200–*–RAA–30	CPV2R4–200–R–30
		PV2R4–237–*–RAA–30	CPV2R4–237–R–30

Seals & Bearings

Item	Name of Parts	Part Numbers				Qty.
		PV2R1	PV2R2	PV2R3	PV2R4	
9	Oil Seal	ISD 26 42 8	ISD 30 42 8	ISD 35 55 11	ISD 45 68 12	1
10	O-Ring	OR NBR–90 G80–N	OR NBR–90 G105–N	OR NBR–90 G135–N	OR NBR–90 G145–N	1
11	O-Ring	—	—	—	OR NBR–90 P28–N	1
12	O-Ring	—	—	—	OR NBR–90 P22A–N	1
13	O-Ring	OR NBR–90 G60–N	OR NBR–90 G85–N	OR NBR–90 G115–N	OR NBR–70–1 G130–N	1
14	O-Ring	OR NBR–90 G30–N	OR NBR–90 P46–N	AS 568–231 (NBR–90)	OR NBR–70–1 G80–N	1
15	Back-up Ring	—	—	—	BR JIS B 2401-4–T3–G130	1
16	Back-up Ring	—	—	—	BR JIS B 2401-4–T2–G80	1
17	Bearing	6004	6205	6207	6209	1

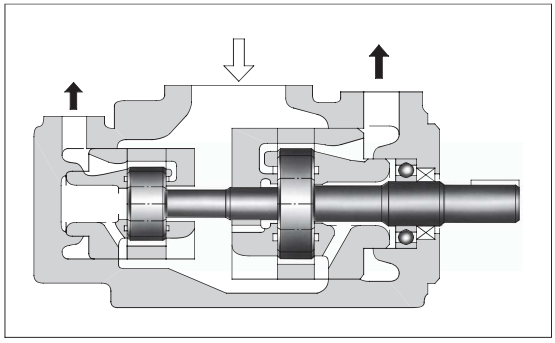
Note: Item No.⑬ and ⑭ (o-rings) and ⑮ and ⑯ (back-up rings) are included in cartridge kit.

● Cartridge kits and seals for pumps for phosphate esters (F-PV2R *) differ from those in the table above. Consult Yuken for details.

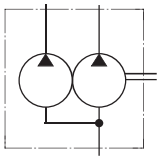
"PV2R" Series Double Pumps

These double pumps consist of two PV2R seires single pumps combined in tandem within a single housing and driven by a common shaft.
A single suction port and two discharge ports are provided so that the output flow can be supplied to separate circuits.





Graphic Symbol



Model number designation

PV2R13	–6	–76	–L	–R	A	A	A	–43
Series Number	Small Volume Pump Nominal Displacement cm³/rev	Large Volume Pump Nominal Displacement cm³/rev	Mounting	Direction of Rotation	Small Volume Pump Discharge Port Position	Large Volume Pump Discharge Port Position	Suction Port Position	Design Number
					(Viewed from Shaft End)			
PV2R12 ★2	6, 8, 10, 12 14, 17, 19, 23 25, 31	26, 33, 41, 47 53, 59, 65	L: Foot Mtg. F: Flange Mtg.	R: ★1 Clockwise (Normal)	E: Left 45° Upwards (Normal)	A: Upwards (Normal)	A: Upwards (Normal)	43
PV2R13 ★2	6, 8, 10, 12 14, 17, 19, 23 25, 31	76, 94, 116			A: Upwards (Normal)			43
PV2R23 ★2	41, 47, 53, 59 65	52, 60, 66, 76 94, 116			E: Left 45° Upwards (Normal)			41

★1. Available to supply pump with anti-clockwise rotation. Consult Yuken for details.
★2. When phosphate esters are used, prefix "F-" to the model number because the special seals (fluororubber) are required to be used.

The following large-capacity dual pumps are also available.
For details, please contact us for a separate document.

Model Numbers	Max. Operating Pressure・Output Flow・Input Power		Shaft Speed Range r/min
	Small Volume Pump	Large Volume Pump	
PV2R33–*–*–*–RAAA–31	Same as PV2R3	Same as PV2R3	600-1800
PV2R14–*–*–*–RAAA–33	6, 8, 10, 12, 14, 17, 19, 23	Same as PV2R4	750-1800
PV2R24–*–*–*–RAAA–31	26, 33, 41, 47		600-1800
PV2R34–*–*–*–REAA–31	Same as PV2R3		

Specifications

Maximum Operating Pressure

Model Numbers		Max. Operating Pressure MPa				
		Petroleum Base Oils		Water Containing Fluids		Synthetic Fluids
		Anti-Wear Type	R&O Type	Anti-Wear ★1 Type Water Glycols	Water Glycols	Phosphate Esters
PV2R12 ★4	Small Volume Pump	21★2	16	16	7	16
	Large Volume Pump	21	14	16	7	14
PV2R13	Small Volume Pump	21★2	16	16	7	16
	Large Volume Pump	21★3	14	16	7	14
PV2R23	Small Volume Pump	21	14	16	7	14
	Large Volume Pump	21★3	14	16	7	14

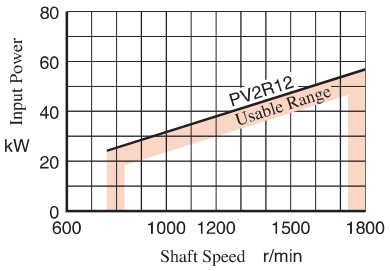
★1. For the brands of anti-wear type water-glycols, see the item of "Hydraulic Fluids" on page B-2.

★2. When using a push-off volume of nominal size "6" or "8" (PV2R12/PV2R13-6, 8) at a pressure exceeding 16 MPa, rotational speed should be 1450 r/min or higher.
The nominal push-off volume "31" (PV2R12/PV2R13-31) is limited to a maximum operating pressure of 16 MPa.

★3. Nominal push-off volume "116" (PV2R13/PV2R23-*-116) limits the maximum operating pressure to 16 MPa.

★4. For the PV2R12 type, the total shaft input power of the small-capacity side pump and the large-capacity side pump is limited to the rotational speed as shown to the right.

PV2R12 Type Allowable Shaft Input



Shaft Speed Range & Output Flow & Input Power, Mass

Model Numbers	Shaft Speed Range r/min				Output Flow & Input Power		Mass kg	
	Petroleum Base Oils		Water Containing Fluids Phosphate Esters					
	Max.	Min.★2	Max.	Min.★2	Small Volume Pump	Large Volume Pump	Flange Mtg.	Foot Mtg.
PV2R12	1800	750	1200	750	Same as single pump "PV2R1", refer to pages B-11 - B-13	Same as single pump "PV2R2", refer to pages B-13 & B-14. However, as for displacement of "26" and "33", refer to page B-22.	25	29.3
PV2R13 ★1	1800	750	1200	750	Same as single pump "PV2R1", refer to pages B-11 - B13	Same as single pump "PV2R3", refer to pages B-14 & B-15	45.6	55.6
PV2R23 ★1	1800	600	1200	600	Same as single pump "PV2R2", refer to pages B-13 & B-14	Same as single pump "PV2R3", refer to pages B-14 & B-15 However, as for displacement of "52", "60" and "66", refer to pages B-22 & B-23	51	61

★1. As for models displacements listed below. Minimum suction pressure is limited in relation to the shaft speed.

★2. For starting at low speed, the maximum viscosity is limited. For details, see the item of "Hydraulic Fluids" on page B-2.

Model Numbers	Min. Suction Pres.	
	Less than 1700 r/min	1700-1800 r/min
PV2R13–*–116 PV2R23–*–116	–20 kPa	0 kPa
PV2R23–*–76 PV2R23–*–94	–20 kPa	–6.7 kPa

Pipe Flange Kits

Pipe flange kits are availabe. When ordering, specify the kit number from the table below.

Pump Model Numbers	Pipe Flange Kit Numbers		
	Suction Port	Large Volume Pump Discharge Port	Small Volume Pump Discharge Port
PV2R12	F5-16-*-10	F5-06-*-10	F5-04-*-10
PV2R13	F5-24-$\frac{A}{B}$-10	F5-10-*-10	F5-04-*-10
PV2R23	F5-24-$\frac{A}{B}$-10	F5-10-*-10	F5-06-*-10

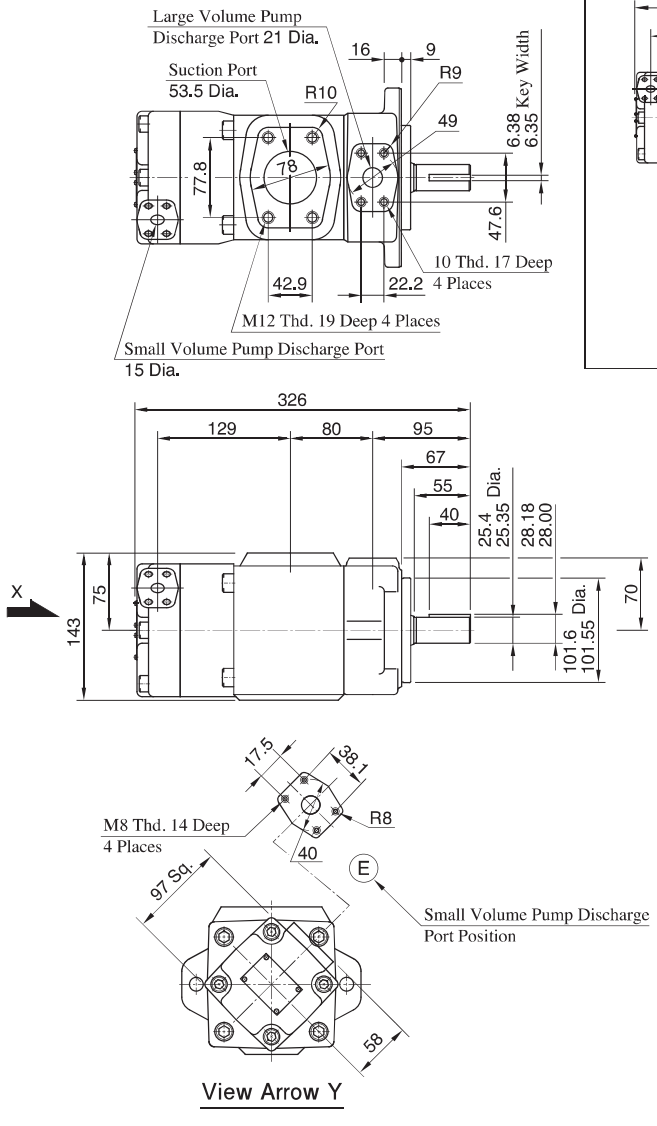
Notes : 1. Letter (A,B,C) indicating pipe connection type is required instead of * symbol in the table above. Please, select a letter referring to the pipe flange kit number designation shown on the right side.
2. In case of using socket welding flanges, there is a case where the operating pressure should be set lower than the normal because of strength of the flanges. Therefore, please pay cautious attention to the operating pressure when the socket welding flanges are used.
3. When phosphate esters are used, prefix "F-" to the model number.

Pipe Flange Kits Numbers Configuration

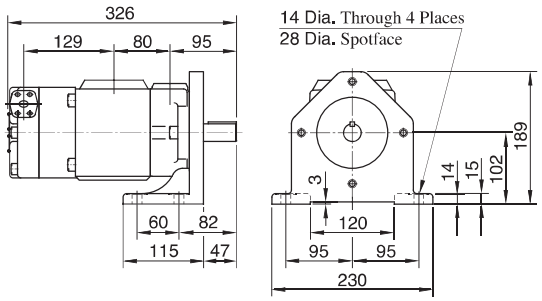
F5-06-*-10

- Pipe Connection Type
  - A : Rc Threaded Connection
  - B : Socket Welding
  - C : Butt Welding
- Size Nominal

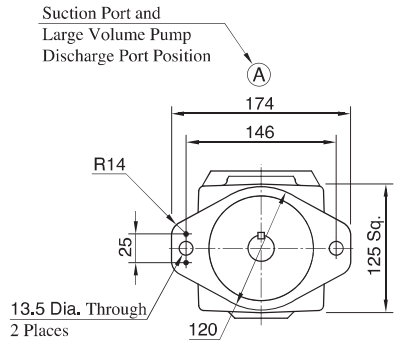
Flange Mtg. : PV2R12-*-*-F



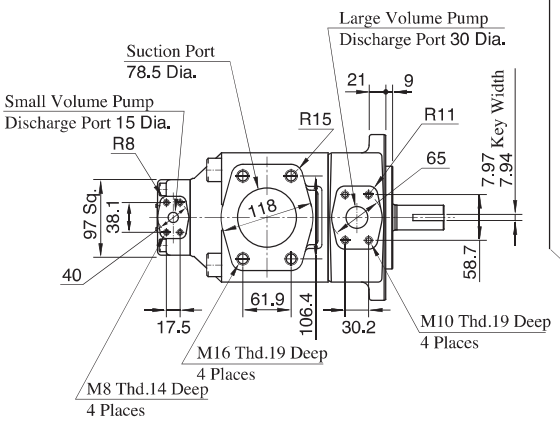
Foot Mtg. : PV2R12-*-*-L



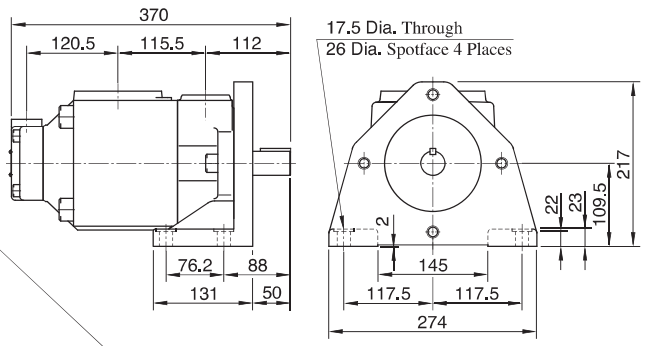
For other dimensions, refer to "Flange Mtg."



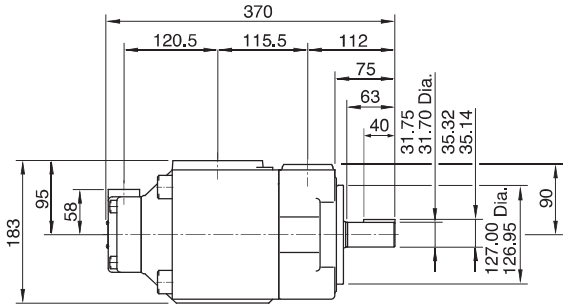
Flange Mtg.: PV2R13-∗-∗-F

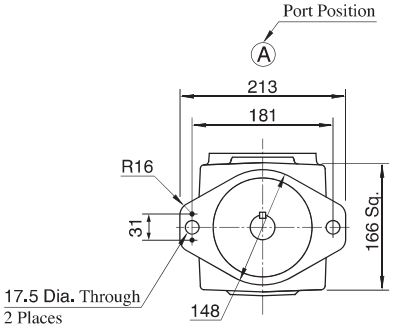


Foot Mtg.: PV2R13-∗-∗-L

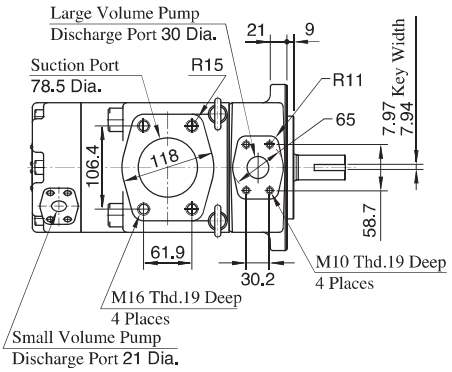


For other dimensions, refer to "Flange Mtg."



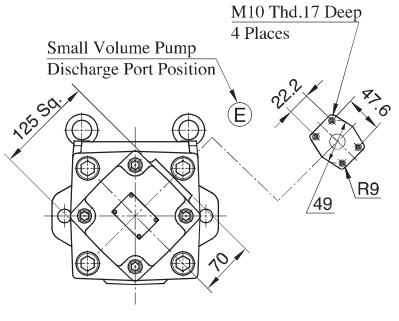


Flange Mtg.: PV2R23-∗-∗-F

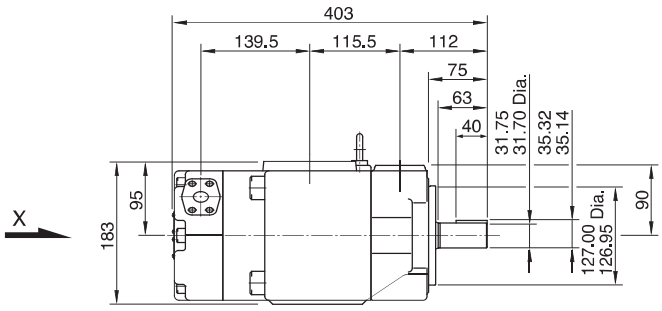


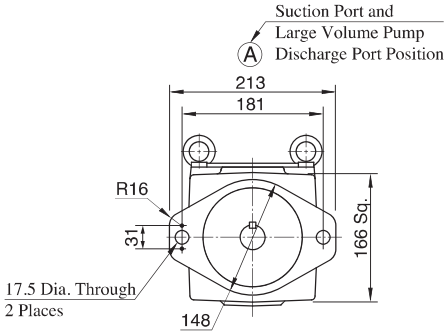
Foot Mtg.: PV2R23-∗-∗-L

Mounting bracket is same as for PV2R13 type. Refer to PV2R13 type above for dimensions related to the bracket.



View Arrow X

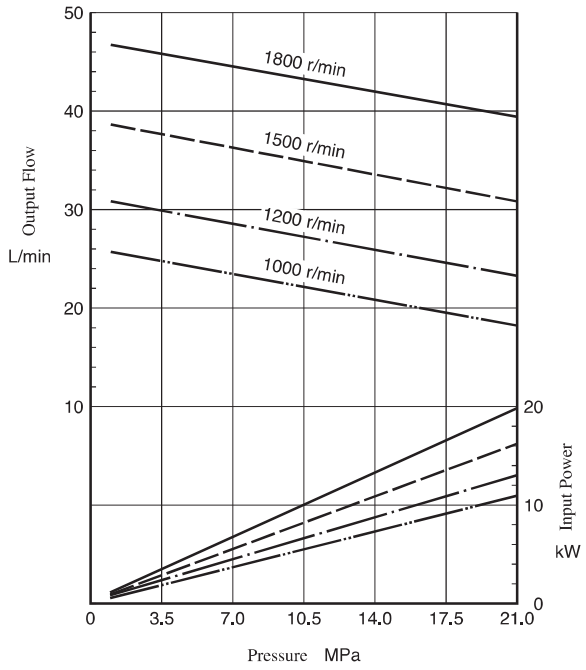




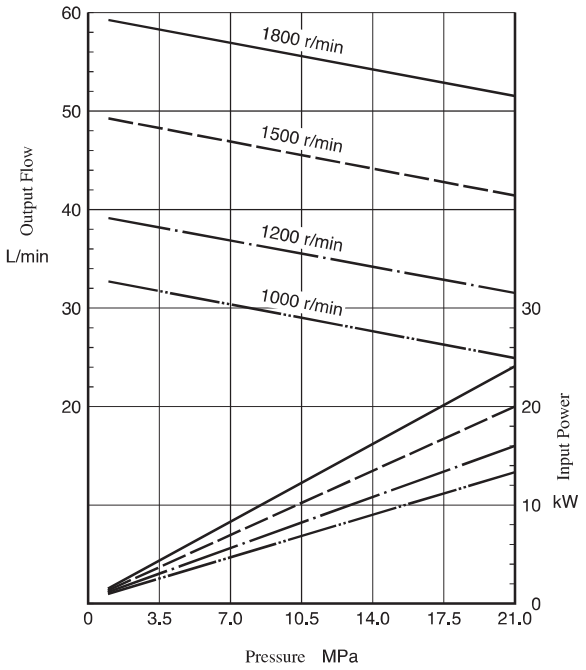
Pressure, Output Flow, and Input Power

Typical Pump Characteristics at Viscosity 20 mm²/s [ISO VG32 Oils, 50°C]

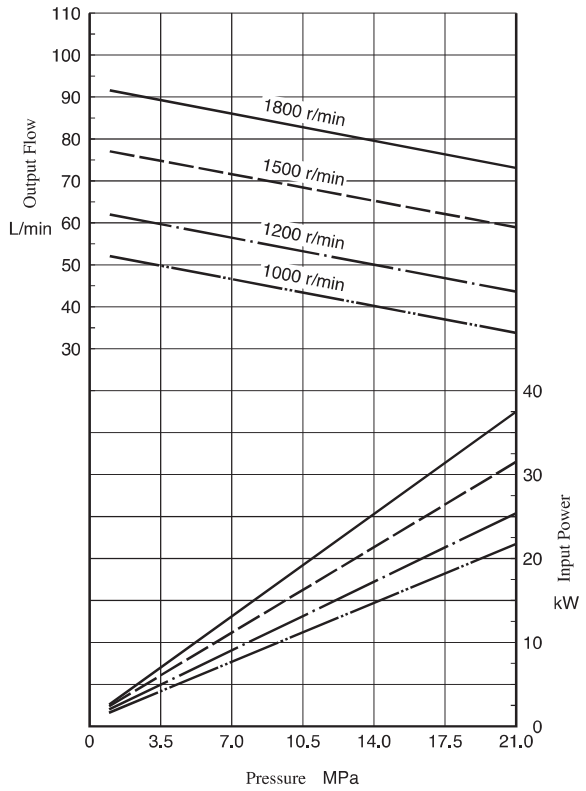
● PV2R12-∗-26



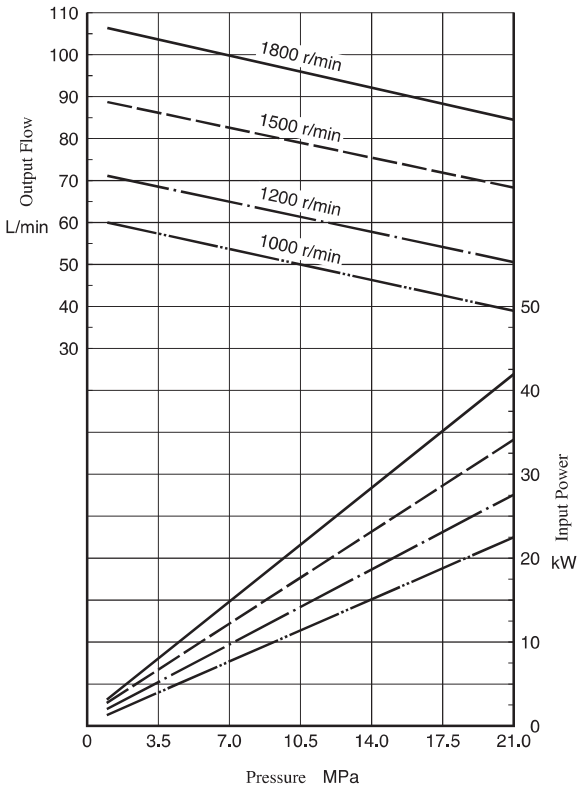
● PV2R12-∗-33



● PV2R23-∗-52



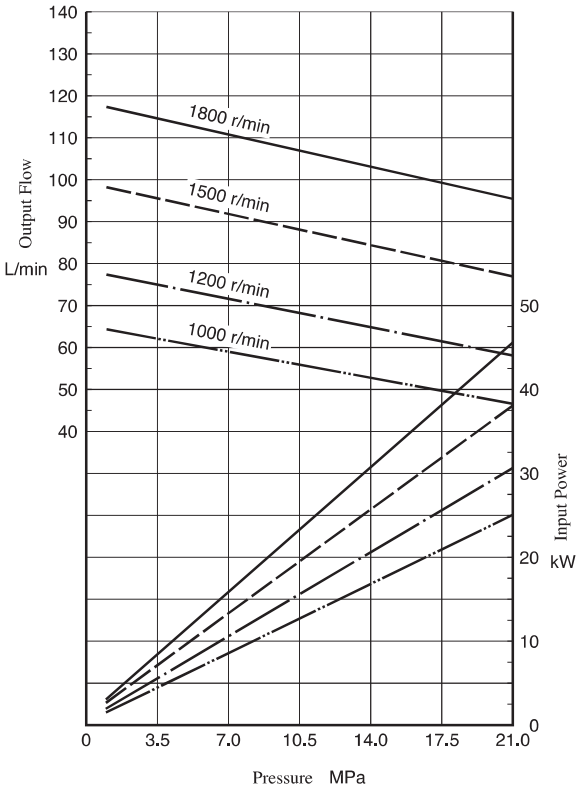
● PV2R23-∗-60



Pressure, Output Flow, and Input Power

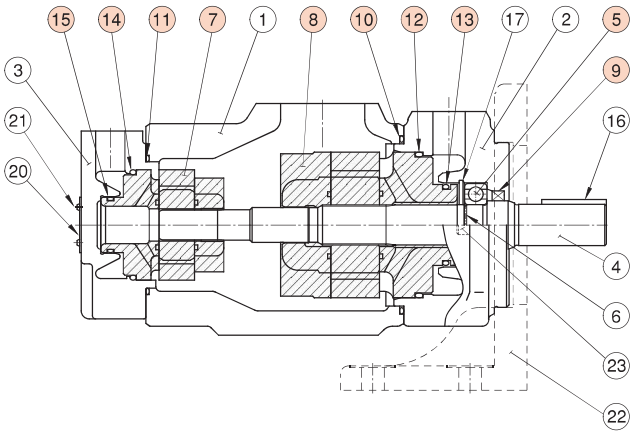
Typical Pump Characteristics at Viscosity 20 mm²/s [ISO VG32 Oils, 50°C]

● PV2R23-*-66



Spare Parts List

PV2R12
PV2R13
PV2R23



Cartridge Kits

Model Numbers	⑦Small Volume Pump Cartridge Kit Numbers	⑧Large Volume Pump Cartridge Kit Numbers	Model Numbers	⑦Small Volume Pump Cartridge Kit Numbers	⑧Large Volume Pump Cartridge Kit Numbers
PV2R12– 6–★–＊–REAA–43	CPV2R13– 6–L–43	CPV2R2 –★–R–41	PV2R13– 6–★–＊–RAAA–43	CPV2R13– 6–L–43	CPV2R3 –★–R–31
PV2R12– 8–★–＊–REAA–43	CPV2R13– 8–L–43		PV2R13– 8–★–＊–RAAA–43	CPV2R13– 8–L–43	
PV2R12–10–★–＊–REAA–43	CPV2R13–10–L–43		PV2R13–10–★–＊–RAAA–43	CPV2R13–10–L–43	
PV2R12–12–★–＊–REAA–43	CPV2R13–12–L–43		PV2R13–12–★–＊–RAAA–43	CPV2R13–12–L–43	
PV2R12–14–★–＊–REAA–43	CPV2R13–14–L–43		PV2R13–14–★–＊–RAAA–43	CPV2R13–14–L–43	
PV2R12–17–★–＊–REAA–43	CPV2R13–17–L–43		PV2R13–17–★–＊–RAAA–43	CPV2R13–17–L–43	
PV2R12–19–★–＊–REAA–43	CPV2R13–19–L–43		PV2R13–19–★–＊–RAAA–43	CPV2R13–19–L–43	
PV2R12–23–★–＊–REAA–43	CPV2R13–23–L–43		PV2R13–23–★–＊–RAAA–43	CPV2R13–23–L–43	
PV2R12–25–★–＊–REAA–43	CPV2R13–25–L–43		PV2R13–25–★–＊–RAAA–43	CPV2R13–25–L–43	
PV2R12–31–★–＊–REAA–43	CPV2R13–31–L–43		PV2R13–31–★–＊–RAAA–43	CPV2R13–31–L–43	
PV2R23–41–★–＊–REAA–41	CPV2R23–41–L–41	CPV2R3 –★–R–31			
PV2R23–47–★–＊–REAA–41	CPV2R23–47–L–41				
PV2R23–53–★–＊–REAA–41	CPV2R23–53–L–41				
PV2R23–59–★–＊–REAA–41	CPV2R23–59–L–41				
PV2R23–65–★–＊–REAA–41	CPV2R23–65–L–41				

Note: The ★ marks are the spaces for large volume pump nominal displacement. Refer to the model No. designation on page B-18, write correct nominal displacement figures.

Seals & Bearings

Item	Name of Parts	Part Numbers			Qty.
		PV2R12	PV2R13	PV2R23	
5	Bearing	6205	6207	6207	1
9	Oil Seal	ISD 30 42 8	ISD 35 55 11	ISD 35 55 11	1
10	O-Ring	OR NBR–90 G105–N	OR NBR–90 G135–N	OR NBR–90 G135–N	1
11	O-Ring	OR NBR–90 G80–N	OR NBR–90 G80–N	OR NBR–90 G105–N	1
12	O-Ring	OR NBR–90 G85–N	OR NBR–90 G115–N	OR NBR–90 G115–N	1
13	O-Ring	OR NBR–90 P46–N	AS 568–231 (NBR–90)	AS 568–231 (NBR–90)	1
14	O-Ring	OR NBR–90 G60–N	OR NBR–90 G60–N	OR NBR–90 G85–N	1
15	O-Ring	OR NBR–90 G30–N	OR NBR–90 G30–N	OR NBR–90 P46–N	1

Note: The o-rings under item No. ⑫ and ⑬ are included in the large volume pump cartridge kit and those under item No. ⑭ and ⑮ are included in the small volume pump cartridge kit.

● Cartridge kits and seals for pumps for phosphate esters (F-PV2R＊＊) differ from those in the table above. Consult Yuken for details.