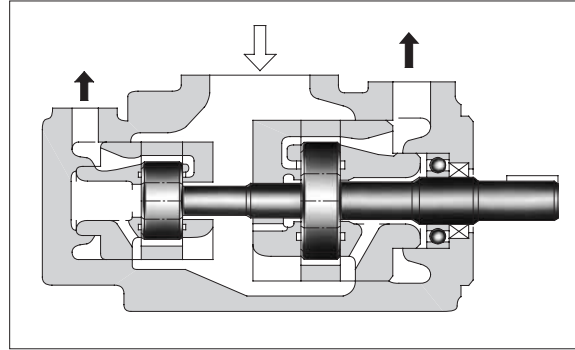
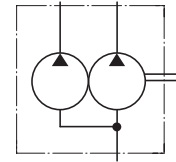


"PV2R" Series Double Vane Pumps

These double pumps consist of two PV2R series 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



B



"PV2R" Series Double Vane Pumps

Model Number Designation

F-	PV2R13	-6	-76	-L	-R	A	A	A	-40	*
Special Seals	Series Number	Small Volume Pump Nominal Displacement cm ³ /rev	Large Volume Pump Nominal Displacement cm ³ /rev	Mounting	Direction of Rotation	Small Volume Pump Discharge Port Position	Large Volume Pump Discharge Port Position	Suction Port Position	Design Number	Design Standards
F: Special seals for phosphate ester type fluids (Omit if not required)	PV2R12	6, 8 10, 12 14, 17 19, 23 25, 31	26, 33 41, 47 53, 59 65	L: Foot Mtg.	R: ^{★1} Clockwise (Normal)	(Viewed from Shaft End)		A	42	Refer to ^{★2}
	PV2R13	6, 8 10, 12 14, 17 19, 23 25, 31	76, 94 116			A: Upwards (Normal)	A: Upwards (Normal)			
	PV2R23	41, 47 53, 59 65	52, 60 66, 76 94, 116			E: Left 45° Upwards (Normal)	A: Upwards (Normal)			
	PV2R33	76, 94 116	76, 94 116	F: Flange Mtg.		A: Upwards (Normal)	A: Upwards (Normal)			
	PV2R14	6, 8 10, 12 14, 17 19, 23	136, 153 184, 200 237	A: Upwards (Normal)		A: Upwards (Normal)				
	PV2R24	26, 33 41, 47		A: Upwards (Normal)		A: Upwards (Normal)				
	PV2R34	52, 60 66, 76 94, 116	E: Left 45° Upwards (Normal)	A: Upwards (Normal)		A: Upwards (Normal)				

★1. Available to supply pump with anti-clockwise rotation. Consult Yuken for details.

★2. Design Standards: None Japanese Standard "JIS" and European Design Standard 90 N. American Design Standard

Specifications

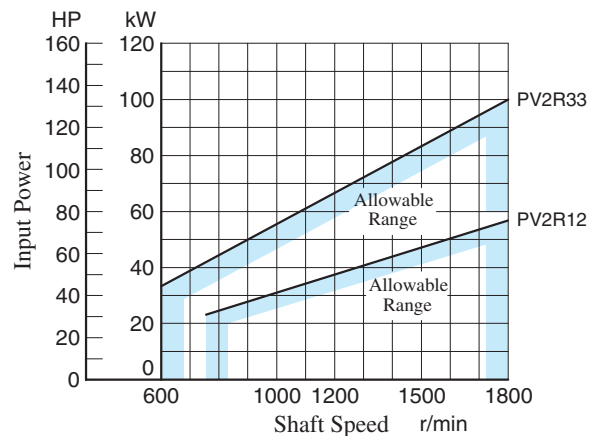
Maximum Operating Pressure

Nominal Displacement cm ³ /rev	Max. Operating Pressure MPa (PSI)					
	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
6	21 ^{★2} (3050)	16 (2320)	16 (2320)	7 (1020)	7 (1020)	16 (2320)
8						
10						
12						
14						
17						
19						
23 ^{★3}	21 ^{★3} (3050)					
25	21 (3050)					
31	16 (2320)					
26	21 (3050)	14 (2030)	16 (2320)	7 (1020)	7 (1020)	14 (2030)
33						
41						
47						
53						
59						
65						
52	21 (3050)	14 (2030)	16 (2320)	7 (1020)	7 (1020)	14 (2030)
60						
66						
76						
94						
116	16 (2320)					
136	17.5 (2540)	14 (2030)	16 (2320)	7 (1020)	7 (1020)	14 (2030)
153						
184						
200						
237						

Note: 1) For the relation between model (series) No. and nominal displacement, see the table below.

2) As for PV2R12 and PV2R33 series, the sum of the input powers to small volume pump and large volume pump is limited against shaft speed as follows.

		Nominal Displacement, Large Volume Pump			
		26, 33, 41, 47, 53, 59, 65	52, 60, 66	76, 94, 116	136, 153, 184, 200, 237
Nominal Displacement, Small Volume Pump	6	PV2R12	—	PV2R13	PV2R14
	8				
	10				
	12				
	14				
	17				
	19				
	23				
	25				
	31				
26	—	—	—	PV2R24	
33					
41					
47					PV2R23
53					
59					
65	—	—	—	PV2R34	
52					
60					
66					
76	—	—	PV2R33	—	
94					
116					



- ★ 1. For the brands of anti-wear type water-glycols, see the item of "Hydraulic Fluids" on page 160.
- ★ 2. For pressures above 16 MPa (2320 PSI), raise the speed over 1450 r/min.
- ★ 3. If nominal displacement "23", of the PV2R14 series is selected, the maximum operating pressure is limited to 16 MPa (2320 PSI).

● Shaft Speed Range

Model Numbers	Shaft Speed Range r/min			
	Petroleum Base Oils		Water Containing Fluids Phosphate Esters	
	Max.	Min.	Max.	Min.
PV2R12	1800	750 ^{★3}	1200	750 ^{★3}
PV2R13	1800 ^{★2}	750 ^{★3}	1200	750 ^{★3}
PV2R23	1800 ^{★2}	600 ^{★3}	1200	600 ^{★3}
PV2R33	1800 ^{★2} (1500) ^{★1}	600	1200	600
PV2R14	1800 ^{★2}	750 ^{★3}	1200	750 ^{★3}
PV2R24	1800 ^{★2}	600 ^{★3}	1200	600 ^{★3}
PV2R34	1800 ^{★2}	600	1200	600

★1. For PV2R33-116-116, the maximum speed is limited to 1500 r/min.

★2. As for the models (nominal displacements) listed below, the minimum suction pressure are limited in relation to the shaft speed.
[For other models, the minimum suction pressure is -20 kPa (5.9 in. Hg vacuum) irrespective of speed.]

Model Numbers	Min. Suction Pres. kPa (in. Hg Vacuum)	
	Less than 1700 r/min	1700 - 1800 r/min
PV2R13-*-116 PV2R23-*-116	-20 (5.9)	0 (0)
PV2R23-*-76 PV2R23-*-94 PV2R33-*-76	-20 (5.9)	-7 (1.97)
PV2R33-94-* PV2R33-116-* PV2R33-*-94 PV2R33-*-116	-20 (5.9)	0 (0)
PV2R14-*-237 PV2R24-*-237 PV2R34-*-237	-20 (5.9)	-13 (3.94)
PV2R34-116-*	-20 (5.9)	0 (0)

★3. For starting at low speed, the maximum viscosity is limited.
For details, see the item of "Hydraulic Fluids" on page 160.

● Output Flow & Input Power

The pump characteristics are the same as those for PV2R series single pumps. See the pages concerned.

Model Numbers	Output Flow & Input Power	
	Small Volume Pump	Large Volume Pump
PV2R12	Same as single pump "PV2R1", refer to pages 170 - 172.	Same as single pump "PV2R2", refer to pages 172 & 173. However, as for displacement of "26" and "33", refer to page 192.
PV2R13	Same as single pump "PV2R1", refer to pages 170 - 172.	Same as single pump "PV2R3", refer to page 174.
PV2R23	Same as single pump "PV2R2", refer to pages 172 & 173.	Same as single pump "PV2R3", refer to page 174. However, as for displacement of "52", "60" and "66", refer to pages 192 & 193.
PV2R33	Same as single pump "PV2R3", refer to page 174.	Same as single pump "PV2R3", refer to page 174.
PV2R14	Same as single pump "PV2R1", refer to pages 170 & 171.	Same as single pump "PV2R4", refer to pages 174 & 175.
PV2R24	Same as single pump "PV2R2", refer to page 172 However, as for displacement of "26" and "33", refer to page 192.	
PV2R34	Same as single pump "PV2R3", refer to page 174. However, as for displacement of "52", "60" and "66", refer to pages 192 & 193.	

● Mass

Mounting	Model Numbers	Approx. Mass kg (lbs.)						
		PV2R12	PV2R13	PV2R23	PV2R33	PV2R14	PV2R24	PV2R34
Flange Mtg.		25 (55.1)	45.6 (101)	51 (112)	84 (185)	75 (165)	78 (172)	98 (216)
Foot Mtg.		29.3 (64.6)	55.6 (123)	61 (135)	94 (207)	100 (221)	103 (227)	123 (271)



■ Pipe Flange Kits

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

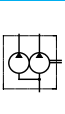
Pump Model Numbers	Name of Port	Pipe Flange Kit Numbers						
		Threaded Connection			Socket Welding ^{★1}		Butt Welding	
		Japanese Standard "JIS"	European Design Standard	N. American Design Standard ^{★2}	Japanese Standard "JIS" European Design Standard	N. American Design Standard ^{★2}	Japanese Standard "JIS" European Design Standard	N. American Design Standard ^{★2}
PV2R12	Suction	F5-16-A-10	F5-16-A-1080	—	F5-16-B-10	F5-16-B-1090	F5-16-C-10	F5-16-C-1090
	Large Discharge	F5-06-A-10	F5-06-A-1080	—	F5-06-B-10	F5-06-B-1090	F5-06-C-10	F5-06-C-1090
	Small Discharge	F5-04-A-10	F5-04-A-1080	—	F5-04-B-10	F5-04-B-1090	F5-04-C-10	F5-04-C-1090
PV2R13	Suction	F5-24-A-10	—	—	F5-24-B-10	F5-24-B-1090	F5-24-C-10	F5-24-C-1090
	Large Discharge	F5-10-A-10	F5-10-A-1080	—	F5-10-B-10	F5-10-B-1090	F5-10-C-10	F5-10-C-1090
	Small Discharge	F5-04-A-10	F5-04-A-1080	—	F5-04-B-10	F5-04-B-1090	F5-04-C-10	F5-04-C-1090
PV2R23	Suction	F5-24-A-10	—	—	F5-24-B-10	F5-24-B-1090	F5-24-C-10	F5-24-C-1090
	Large Discharge	F5-10-A-10	F5-10-A-1080	—	F5-10-B-10	F5-10-B-1090	F5-10-C-10	F5-10-C-1090
	Small Discharge	F5-06-A-10	F5-06-A-1080	—	F5-06-B-10	F5-06-B-1090	F5-06-C-10	F5-06-C-1090
PV2R33	Suction	F5-28-A-10	—	—	F5-28-B-10	F5-28-B-1090	F5-28-C-10	F5-28-C-1090
	Large Discharge	F5-10-A-10	F5-10-A-1080	—	F5-10-B-10	F5-10-B-1090	F5-10-C-10	F5-10-C-1090
	Small Discharge	F5-10-A-10	F5-10-A-1080	—	F5-10-B-10	F5-10-B-1090	F5-10-C-10	F5-10-C-1090
PV2R14	Suction	F5-28-A-10	—	—	F5-28-B-10	F5-28-B-1090	F5-28-C-10	F5-28-C-1090
	Large Discharge	F5-12-A-10	F5-12-A-1080	—	F5-12-B-10	F5-12-B-1090	F5-12-C-10	F5-12-C-1090
	Small Discharge	F5-04-A-10	F5-04-A-1080	—	F5-04-B-10	F5-04-B-1090	F5-04-C-10	F5-04-C-1090
PV2R24	Suction	F5-28-A-10	—	—	F5-28-B-10	F5-28-B-1090	F5-28-C-10	F5-28-C-1090
	Large Discharge	F5-12-A-10	F5-12-A-1080	—	F5-12-B-10	F5-12-B-1090	F5-12-C-10	F5-12-C-1090
	Small Discharge	F5-06-A-10	F5-06-A-1080	—	F5-06-B-10	F5-06-B-1090	F5-06-C-10	F5-06-C-1090
PV2R34	Suction	F5-32-A-10	—	—	F5-32-B-10	F5-32-B-1090	F5-32-C-10	F5-32-C-1090
	Large Discharge	F5-12-A-10	F5-12-A-1080	—	F5-12-B-10	F5-12-B-1090	F5-12-C-10	F5-12-C-1090
	Small Discharge	F5-10-A-10	F5-10-A-1080	—	F5-10-B-10	F5-10-B-1090	F5-10-C-10	F5-10-C-1090

★1. 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.

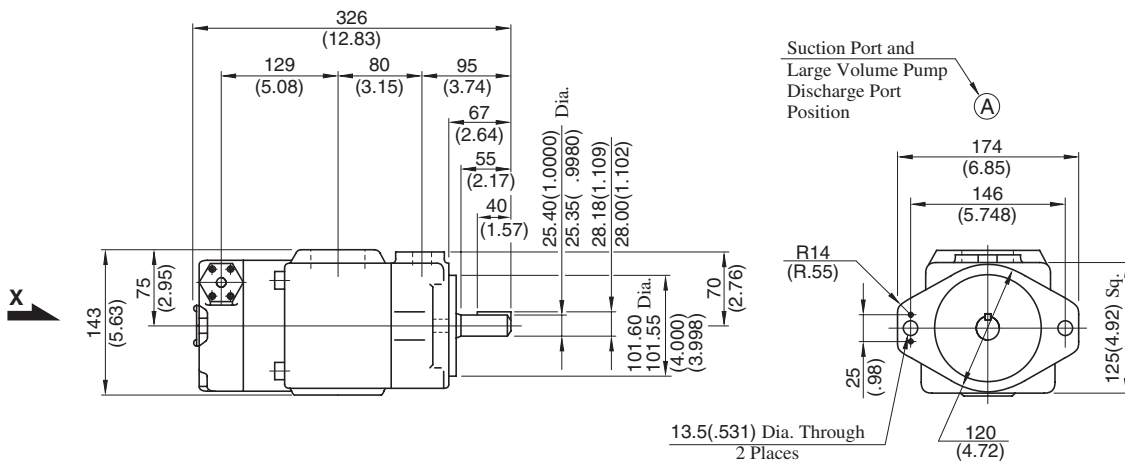
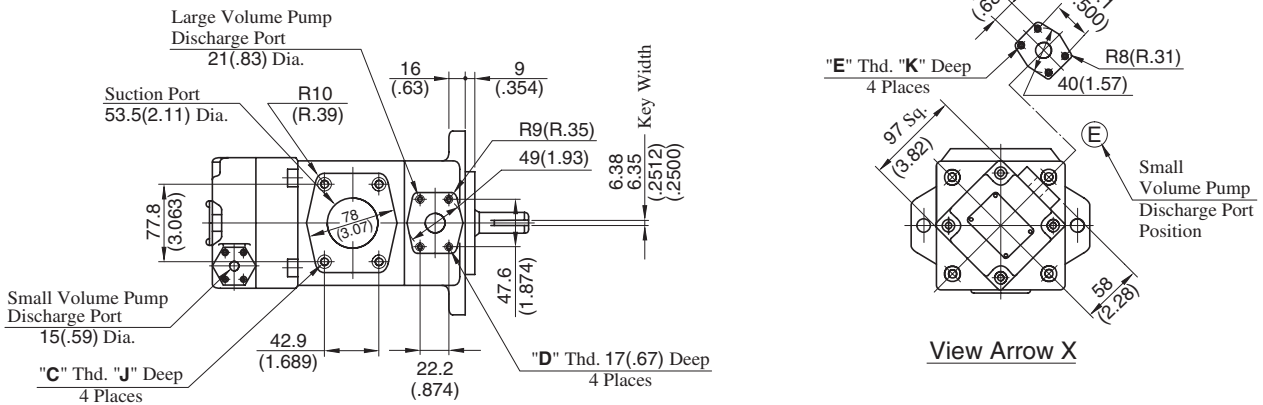
★2. As dimensions of the pipe flange mounting surface are conformed to SAE 4 Bolt Split Flange (Standard Pressure Series), pipe flanges conforming to the SAE Standards can be used.

Notes: Special seals (Viton seals) are required when phosphate ester type fluids are used. (Prefix "F-" to the pipe flange kit number when ordering.)

● Details of the pipe flange kits are shown on [page 824](#).



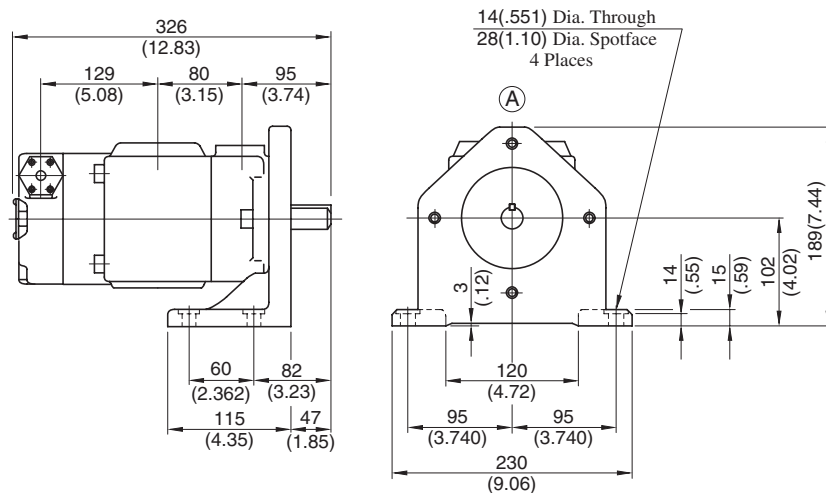
Flange Mtg.: PV2R12-**-F-REAA-42/4290



Model Numbers	"C" Thd.	"D" Thd.	"E" Thd.	Dimensions mm (Inches)	
				J	K
PV2R12-**-F-REAA-42	M12	M10	M8	19 (.75)	14 (.55)
PV2R12-**-F-REAA-4290	1/2-13 UNC	3/8-16 UNC	5/16-18 UNC	21 (.83)	16 (.63)

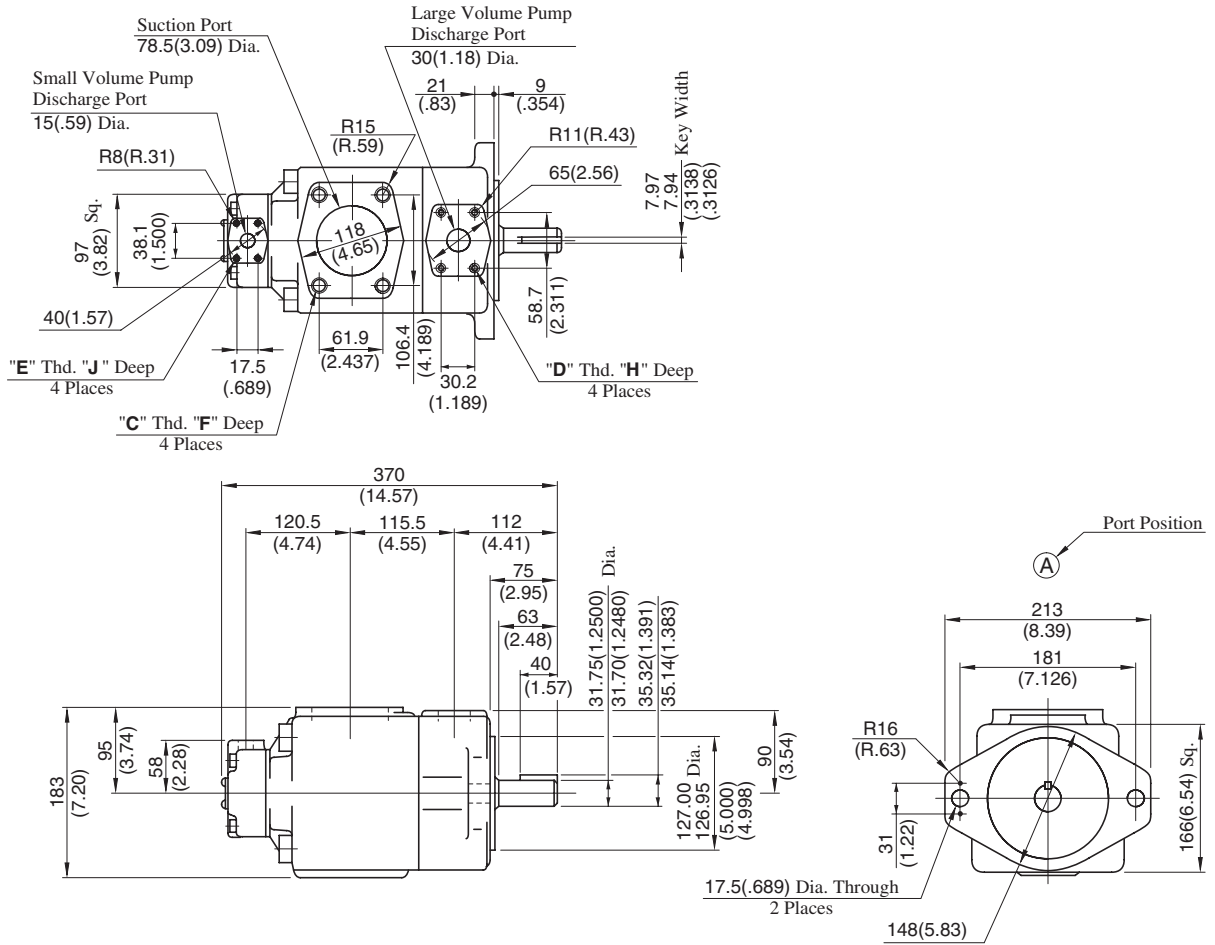
DIMENSIONS IN MILLIMETRES (INCHES)

Foot Mtg.: PV2R12-**-L-REAA-42/4290



• For other dimensions, refer to "Flange Mtg.".

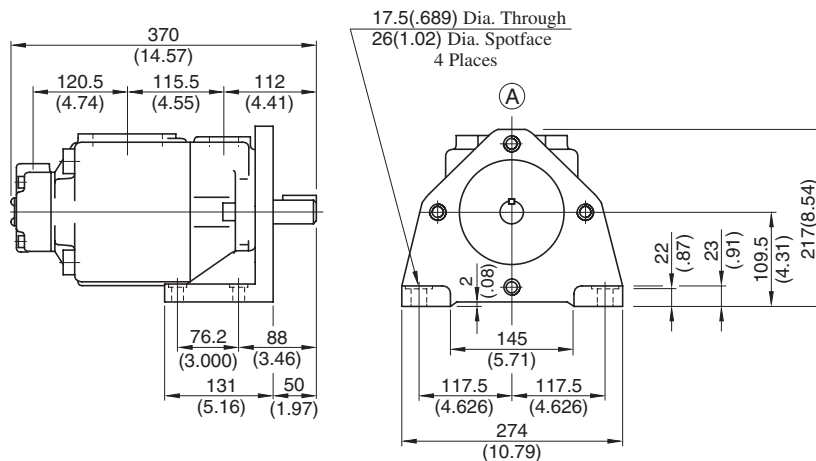
Flange Mtg.: PV2R13-*-*-F-RAAA-42/4290



Model Numbers	"C" Thd.	"D" Thd.	"E" Thd.	Dimensions mm (Inches)		
				F	H	J
PV2R13-*-*-F-RAAA-42	M16	M10	M8	19 (.75)	19 (.75)	14 (.55)
PV2R13-*-*-F-RAAA-4290	5/8-11 UNC	7/16-14 UNC	5/16-18 UNC	21 (.83)	20 (.79)	16 (.63)

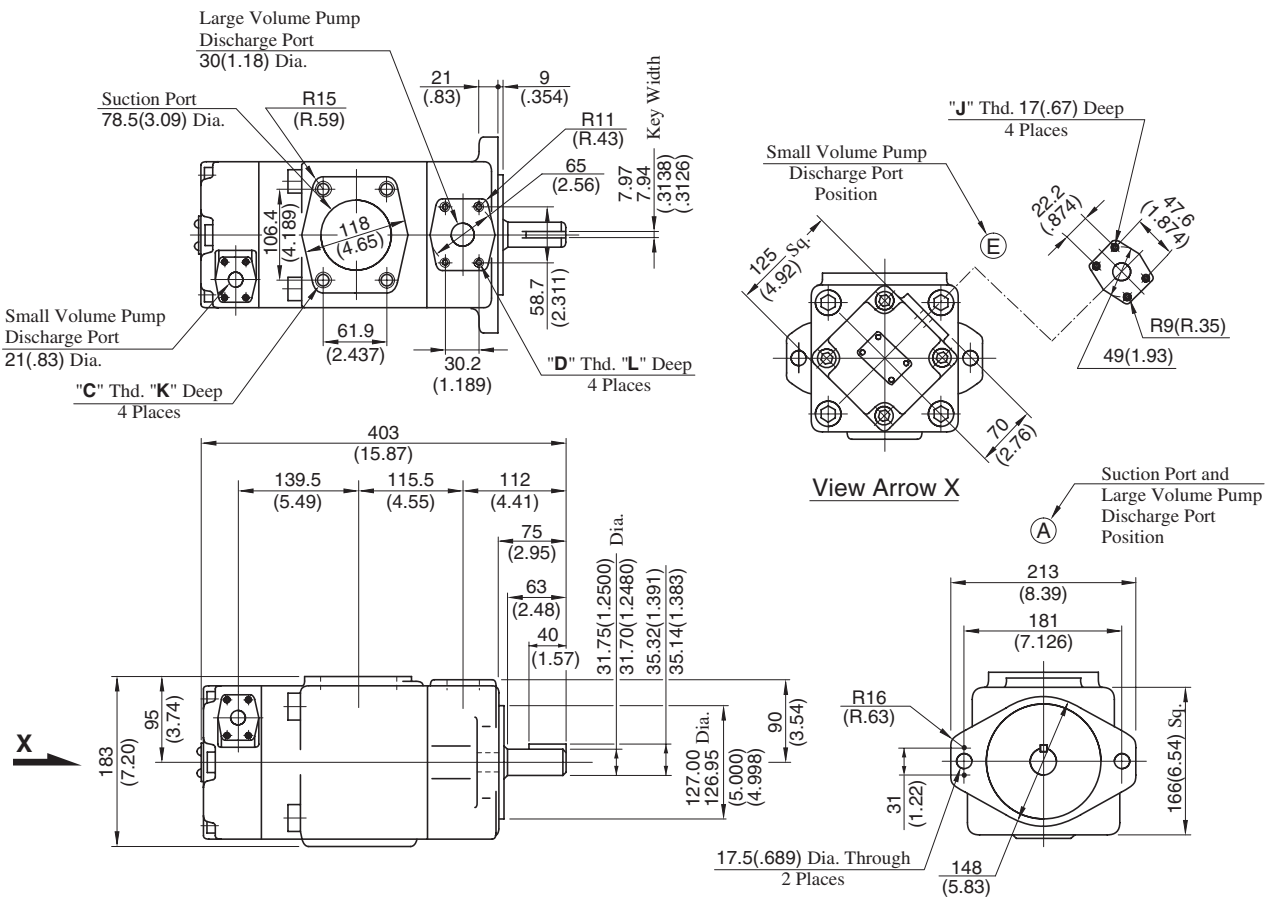
DIMENSIONS IN MILLIMETRES (INCHES)

Foot Mtg.: PV2R13-*-*-L-RAAA-42/4290



• For other dimensions, refer to "Flange Mtg.".

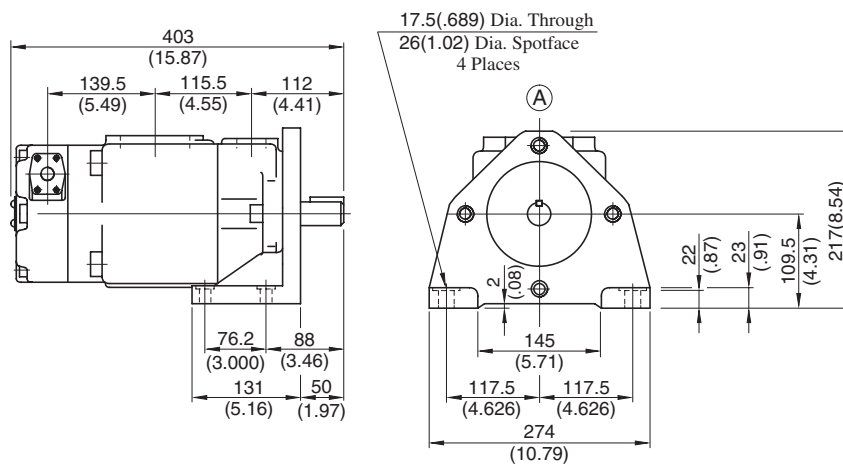
Flange Mtg.: PV2R23-*-F-REAA-41/4190



Model Numbers	"C" Thd.	"D" Thd.	"J" Thd.	Dimensions mm (Inches)	
				K	L
PV2R23-*-F-REAA-41	M16	M10	M10	19 (.75)	19 (.75)
PV2R23-*-F-REAA-4190	5/8-11 UNC	7/16-14 UNC	3/8-16 UNC	21 (.83)	20 (.79)

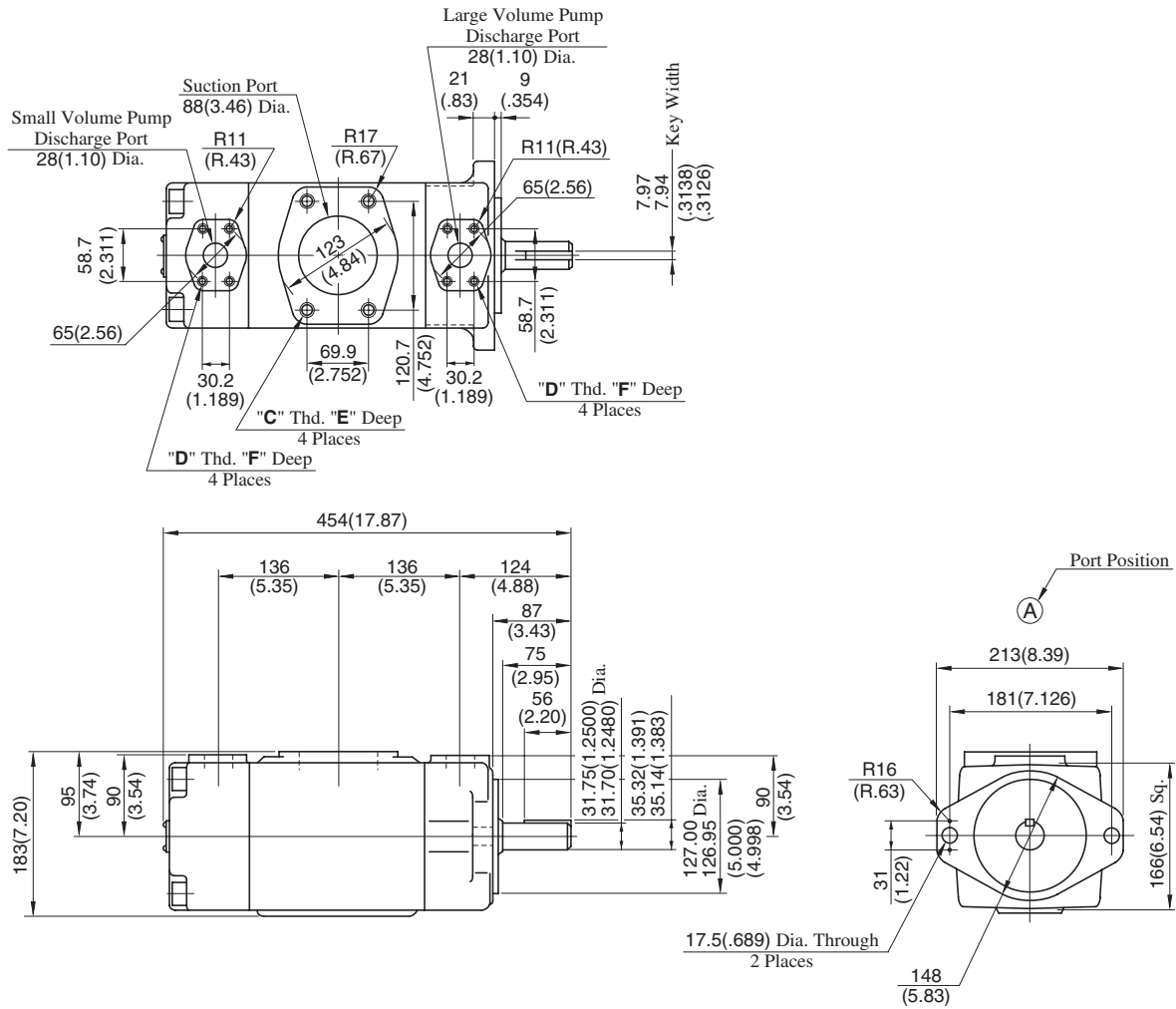
DIMENSIONS IN MILLIMETRES (INCHES)

Foot Mtg.: PV2R23-*-L-REAA-41/4190



• For other dimensions, refer to "Flange Mtg.".

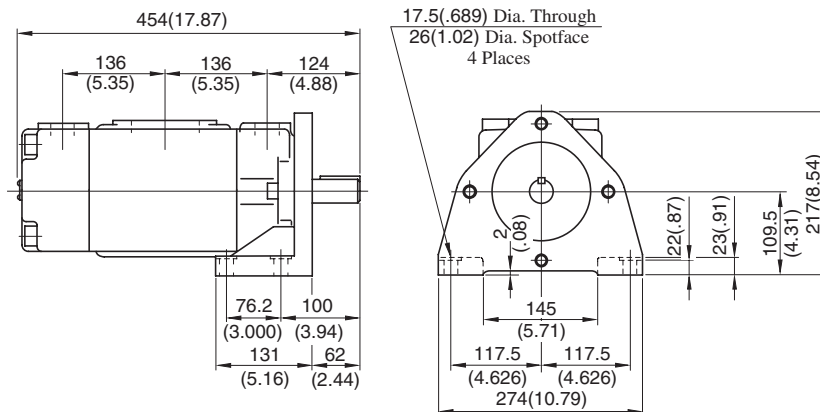
Flange Mtg.: PV2R33-**-F-RAAA-31/3190



Model Numbers	"C" Thd.	"D" Thd.	Dimensions mm (Inches)	
			E	F
PV2R33-**-F-RAAA-31	M16	M10	19 (.75)	19 (.75)
PV2R33-**-F-RAAA-3190	5/8-11 UNC	7/16-14 UNC	21 (.83)	20 (.79)

DIMENSIONS IN MILLIMETRES (INCHES)

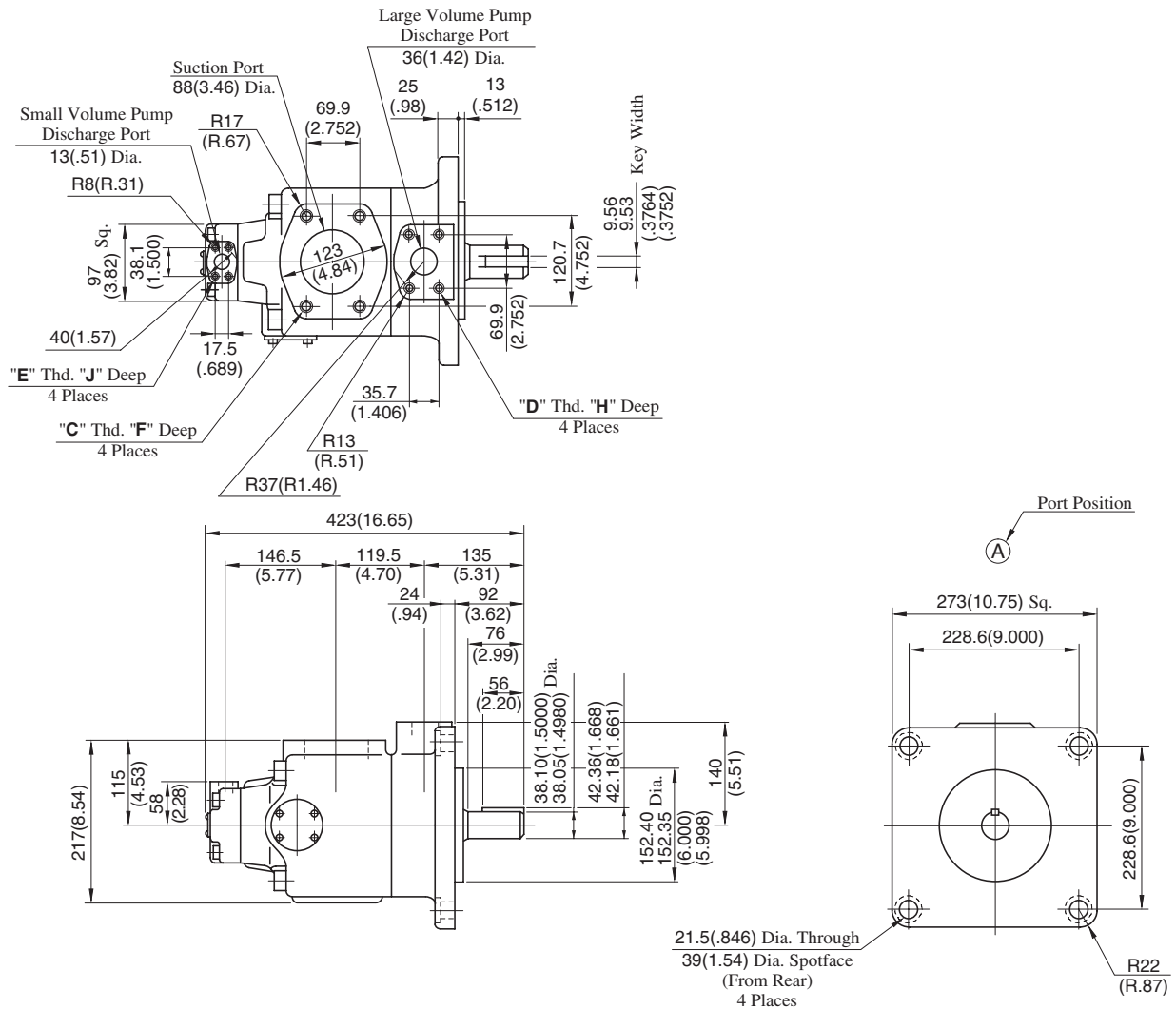
Foot Mtg.: PV2R33-**-L-RAAA-31/3190



• For other dimensions, refer to "Flange Mtg.".



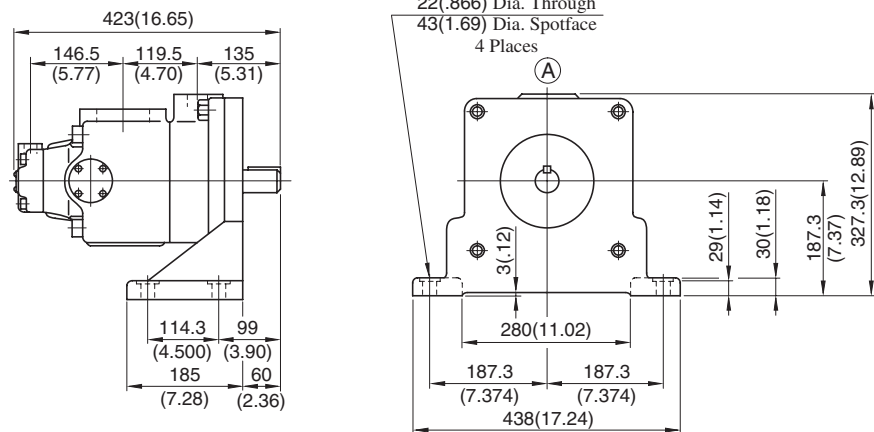
Flange Mtg.: PV2R14-**-F-RAAA-32/3290



Model Numbers	"C" Thd.	"D" Thd.	"E" Thd.	Dimensions mm (Inches)		
				F	H	J
PV2R14-**-F-RAAA-32	M16	M12	M8	19 (.75)	19 (.75)	14 (.55)
PV2R14-**-F-RAAA-3290	5/8-11 UNC	1/2-13 UNC	5/16-18 UNC	21 (.83)	21 (.83)	16 (.63)

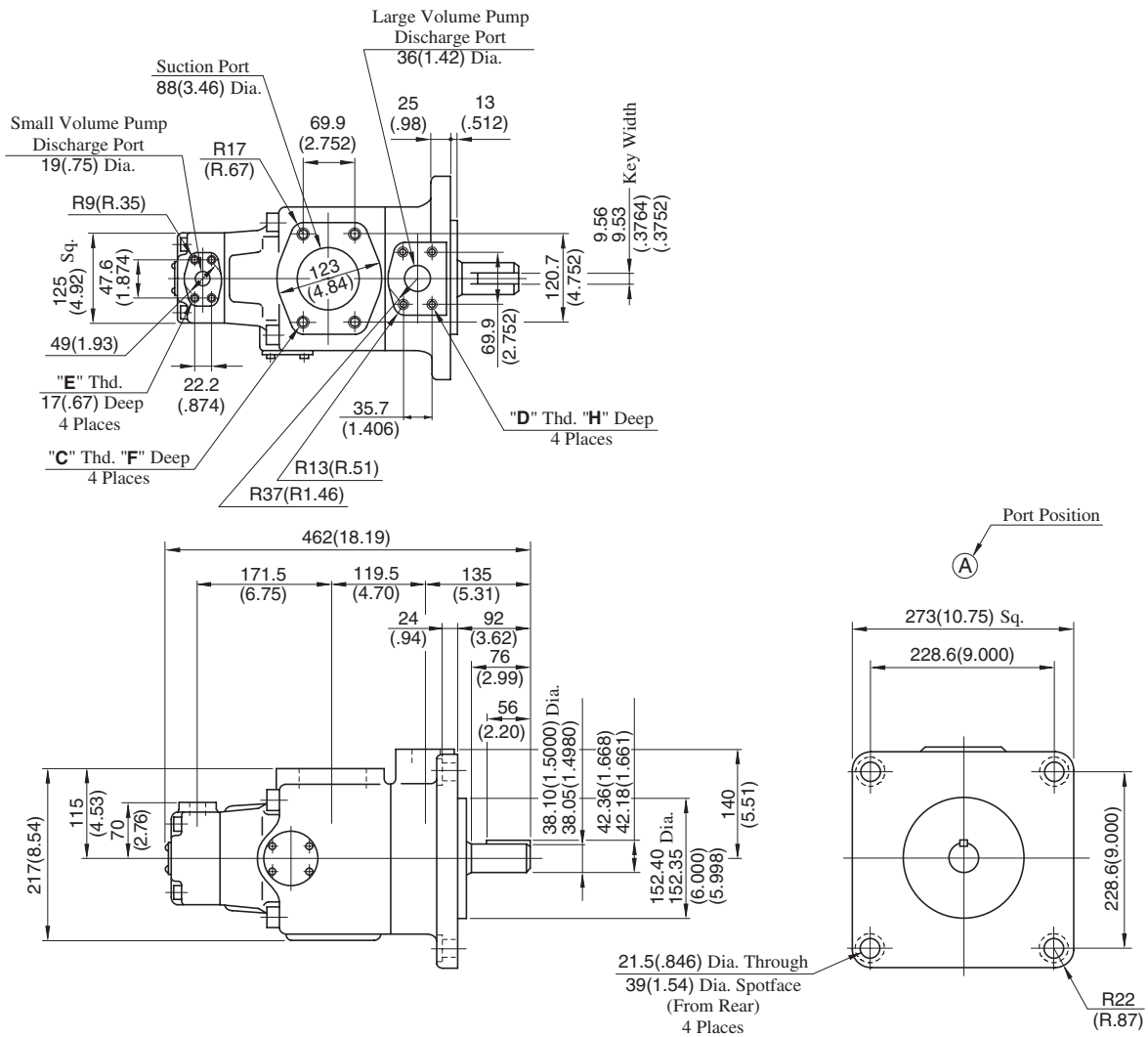
DIMENSIONS IN
MILLIMETRES (INCHES)

Foot Mtg.: PV2R14-**-L-RAAA-32/3290



• For other dimensions, refer to "Flange Mtg.".

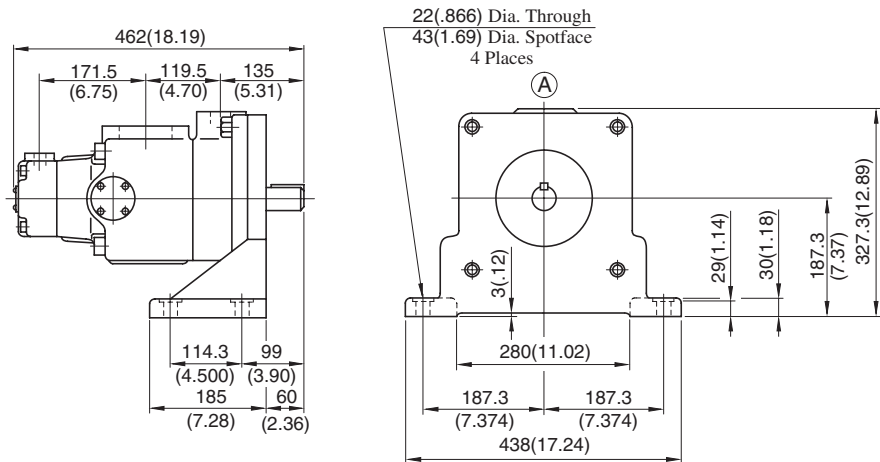
Flange Mtg.: PV2R24-*-F-RAAA-31/3190



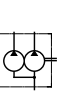
Model Numbers	"C" Thd.	"D" Thd.	"E" Thd.	Dimensions mm (Inches)	
				F	H
PV2R24-*-F-RAAA-31	M16	M12	M10	19 (.75)	19 (.75)
PV2R24-*-F-RAAA-3190	5/8-11 UNC	1/2-13 UNC	3/8-16 UNC	21 (.83)	21 (.83)

DIMENSIONS IN MILLIMETRES (INCHES)

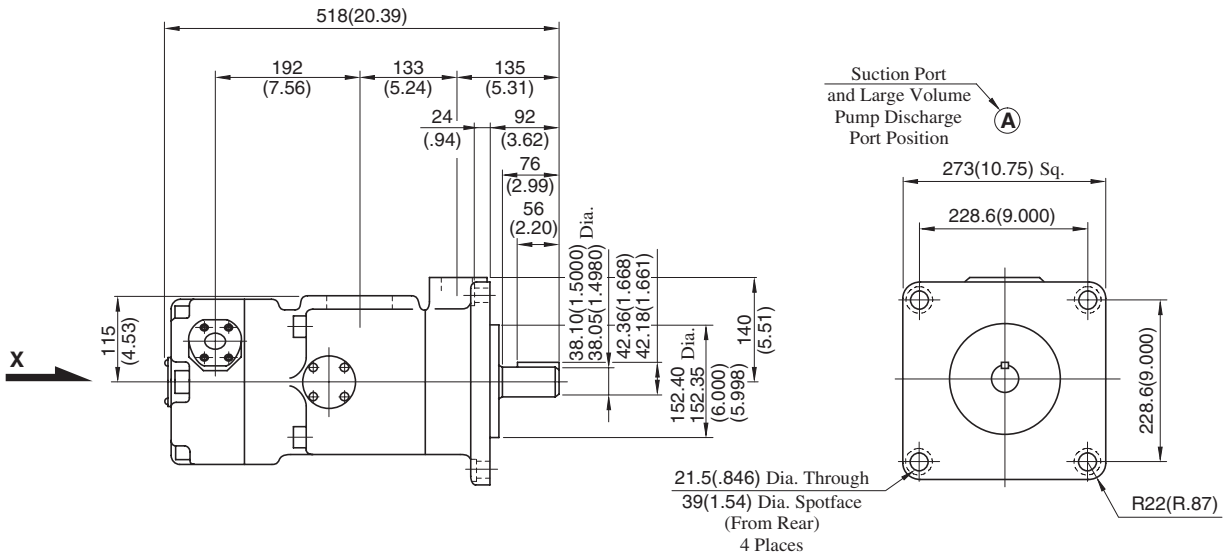
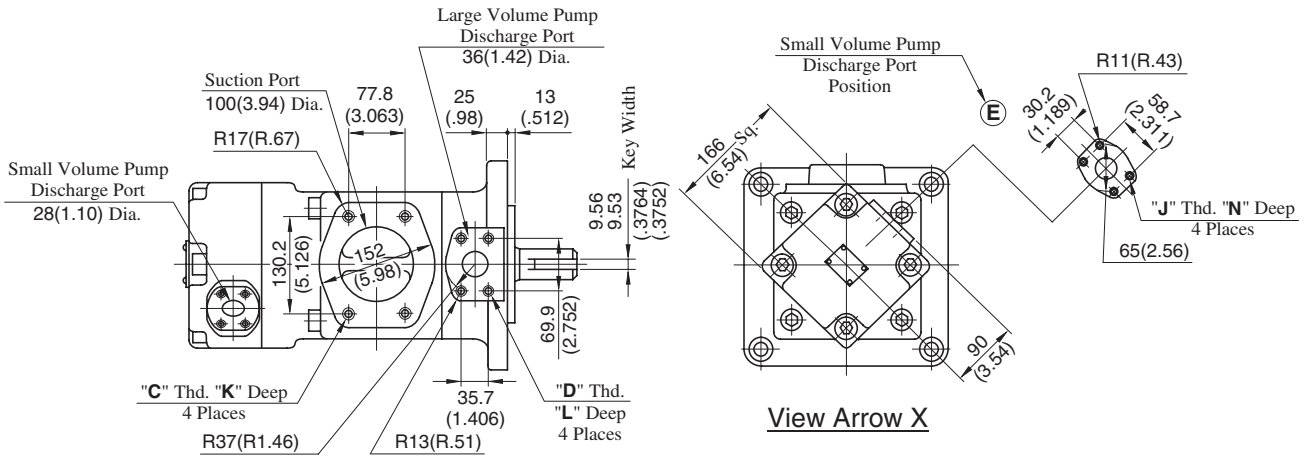
Foot Mtg.: PV2R24-*-L-RAAA-31/3190



• For other dimensions, refer to "Flange Mtg."



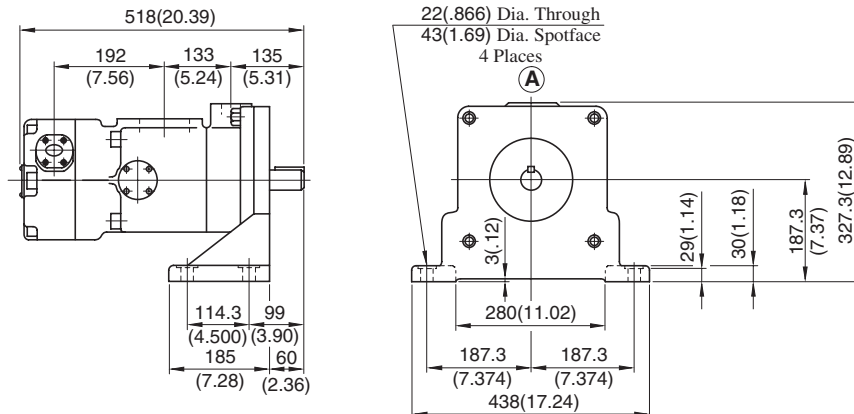
Flange Mtg.: PV2R34-**-F-REAA-31/3190



Model Numbers	"C" Thd.	"D" Thd.	"J" Thd.	Dimensions mm (Inches)		
				K	L	N
PV2R34-**-F-REAA-31	M16	M12	M8	19 (.75)	19 (.75)	19 (.75)
PV2R34-**-F-REAA-3190	5/8-11 UNC	1/2-13 UNC	7/16-14 UNC	21 (.83)	21 (.83)	20 (.79)

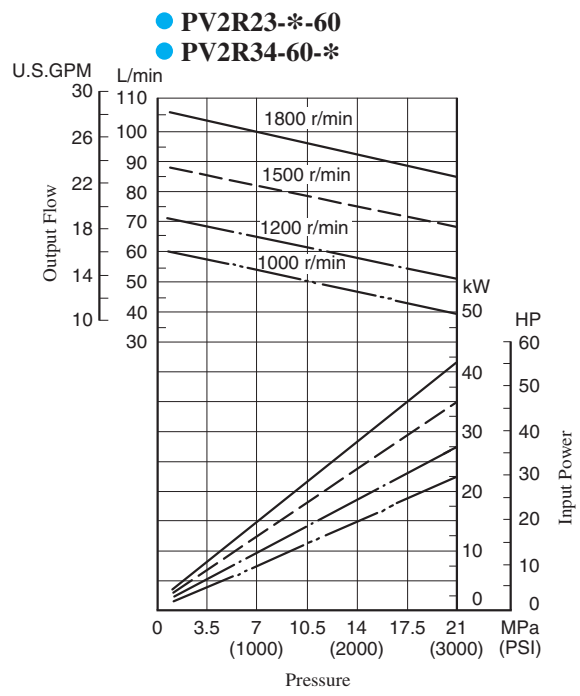
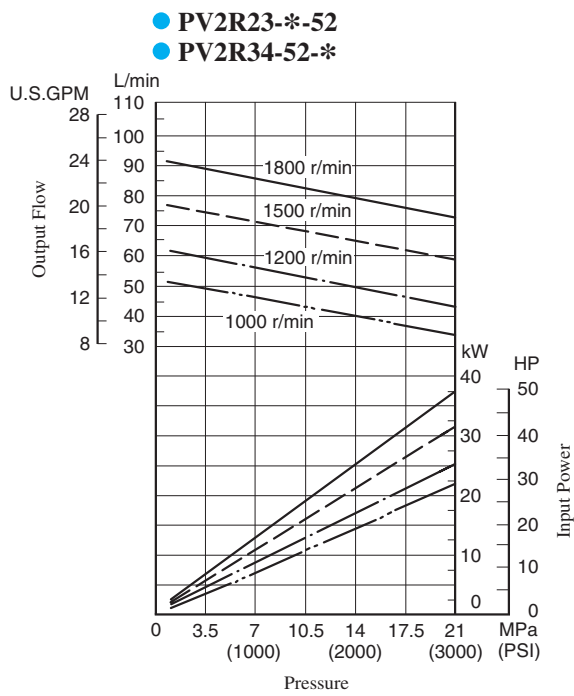
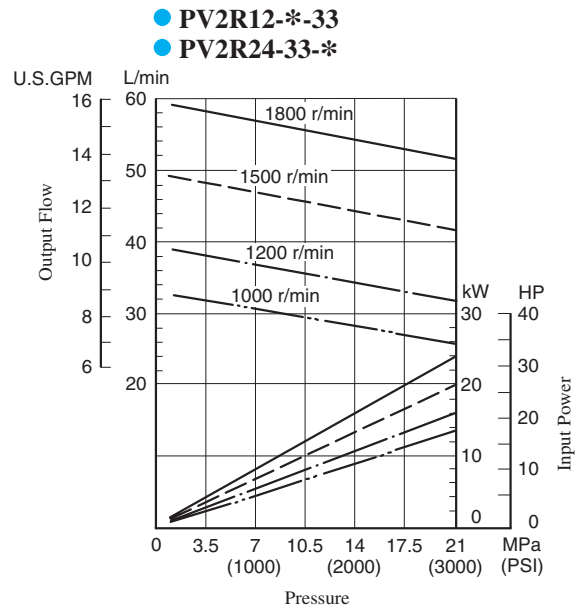
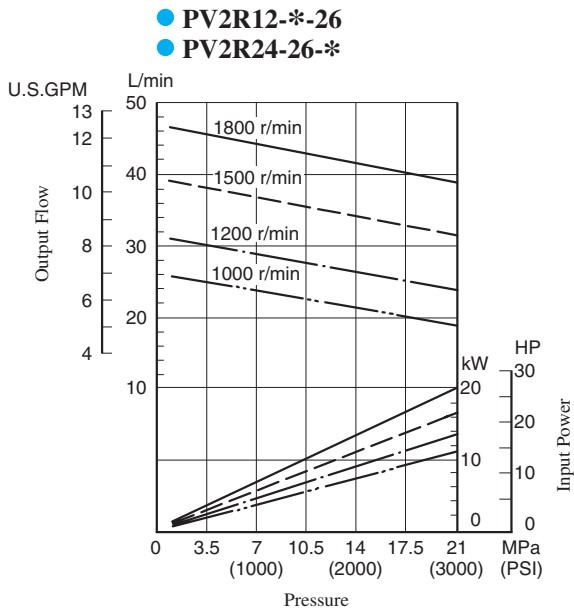
DIMENSIONS IN MILLIMETRES (INCHES)

Foot Mtg.: PV2R34-**-L-REAA-31/3190

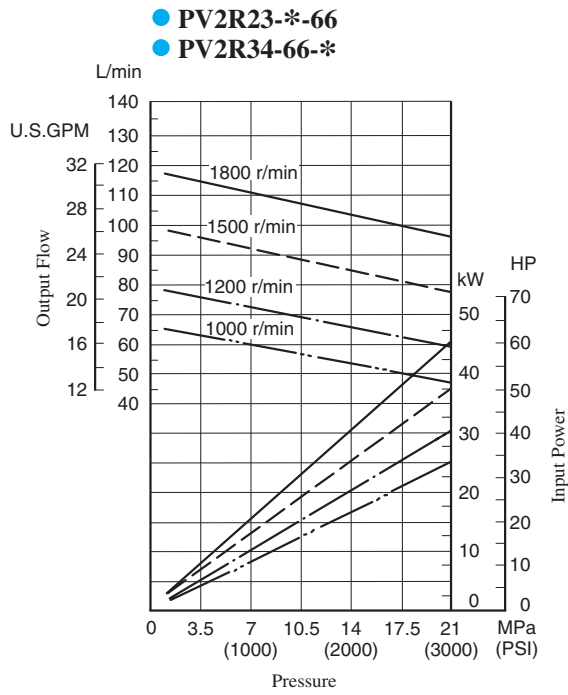


• For other dimensions, refer to "Flange Mtg."

Typical Pump Characteristics at Viscosity 20 mm²/s (100 SSU) [ISO VG32 Oils, 50°C (122°F)]

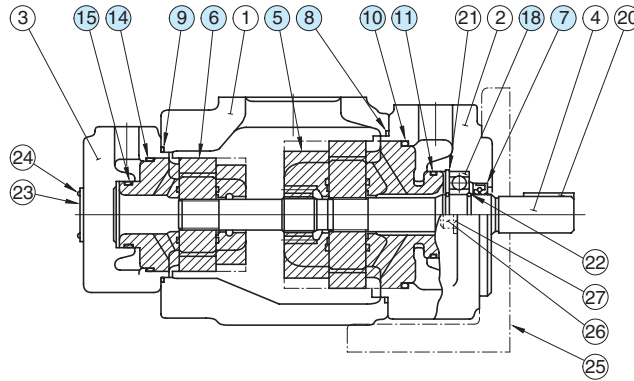


Typical Pump Characteristics at Viscosity 20 mm²/s (100 SSU) [ISO VG32 Oils, 50°C (122°F)]



Spare Parts List

PV2R12-**-**-REAA-42/4290
 PV2R13-**-**-RAAA-42/4290
 PV2R23-**-**-REAA-41/4190
 PV2R33-**-**-RAAA-31/3190



Cartridge Kits

Model Numbers	Cartridge Kit Numbers		Model Numbers	Cartridge Kit Numbers	
	⑥ Small Volume Pump	⑤ Large Volume Pump		⑥ Small Volume Pump	⑤ Large Volume Pump
PV2R12-6-★-**-REAA-42*	CPV2R13-6-L-42	CPV2R2 -★-R-41	PV2R13-6-★-**-RAAA-42*	CPV2R13-6-L-42	CPV2R3 -★-R-31
PV2R12-8-★-**-REAA-42*	CPV2R13-8-L-42		PV2R13-8-★-**-RAAA-42*	CPV2R13-8-L-42	
PV2R12-10-★-**-REAA-42*	CPV2R13-10-L-42		PV2R13-10-★-**-RAAA-42*	CPV2R13-10-L-42	
PV2R12-12-★-**-REAA-42*	CPV2R13-12-L-42		PV2R13-12-★-**-RAAA-42*	CPV2R13-12-L-42	
PV2R12-14-★-**-REAA-42*	CPV2R13-14-L-42		PV2R13-14-★-**-RAAA-42*	CPV2R13-14-L-42	
PV2R12-17-★-**-REAA-42*	CPV2R13-17-L-42		PV2R13-17-★-**-RAAA-42*	CPV2R13-17-L-42	
PV2R12-19-★-**-REAA-42*	CPV2R13-19-L-42		PV2R13-19-★-**-RAAA-42*	CPV2R13-19-L-42	
PV2R12-23-★-**-REAA-42*	CPV2R13-23-L-42		PV2R13-23-★-**-RAAA-42*	CPV2R13-23-L-42	
PV2R12-25-★-**-REAA-42*	CPV2R13-25-L-42		PV2R13-25-★-**-RAAA-42*	CPV2R13-25-L-42	
PV2R12-31-★-**-REAA-42*	CPV2R13-31-L-42		PV2R13-31-★-**-RAAA-42*	CPV2R13-31-L-42	
PV2R23-41-★-**-REAA-41*	CPV2R23-41-L-41	CPV2R33 -★-R-31	PV2R33-76-★-**-RAAA-31*	CPV2R33-76-L-31	CPV2R33 -★-R-31
PV2R23-47-★-**-REAA-41*	CPV2R23-47-L-41		PV2R33-94-★-**-RAAA-31*	CPV2R33-94-L-31	
PV2R23-53-★-**-REAA-41*	CPV2R23-53-L-41		PV2R33-116-★-**-RAAA-31*	CPV2R33-116-L-31	
PV2R23-59-★-**-REAA-41*	CPV2R23-59-L-41				
PV2R23-65-★-**-REAA-41*	CPV2R23-65-L-41				

Note: The ★ marks are a spaces for large volume pump nominal displacement. Referring to the model No. designation on page 181, write the correct nominal displacement figures.

Seals & Bearings

Item	Name of Parts	Part Numbers				Qty.
		PV2R12	PV2R13	PV2R23	PV2R33	
7★	Oil Seal	ISD 30 42 8	ISD 35 55 11	ISD 35 55 11	ISD 35 55 11	1
8★	O-Ring	SO-NB-G105	SO-NB-G135	SO-NB-G135	SO-NB-G135	1
9★	O-Ring	SO-NB-G80	SO-NB-G80	SO-NB-G105	SO-NB-G135	1
10★	O-Ring	SO-NB-G85	SO-NB-G115	SO-NB-G115	SO-NB-G115	1
11★	O-Ring	SO-NB-P46	SO-NB-A231	SO-NB-A231	SO-NB-A231	1
14★	O-Ring	SO-NB-G60	SO-NB-G60	SO-NB-G85	SO-NB-G115	1
15★	O-Ring	SO-NB-G30	SO-NB-G30	SO-NB-P46	SO-NB-A231	1
18	Bearing	6205	6207	6207	6207	1
19	Bearing	—	—	—	6305	1

Note: 1) The o-rings under item. Nos. ⑩ and ⑪ are included in the large volume pump cartridge kit and those under item. Nos. ⑭ and ⑮ in the small volume pump cartridge kit.

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

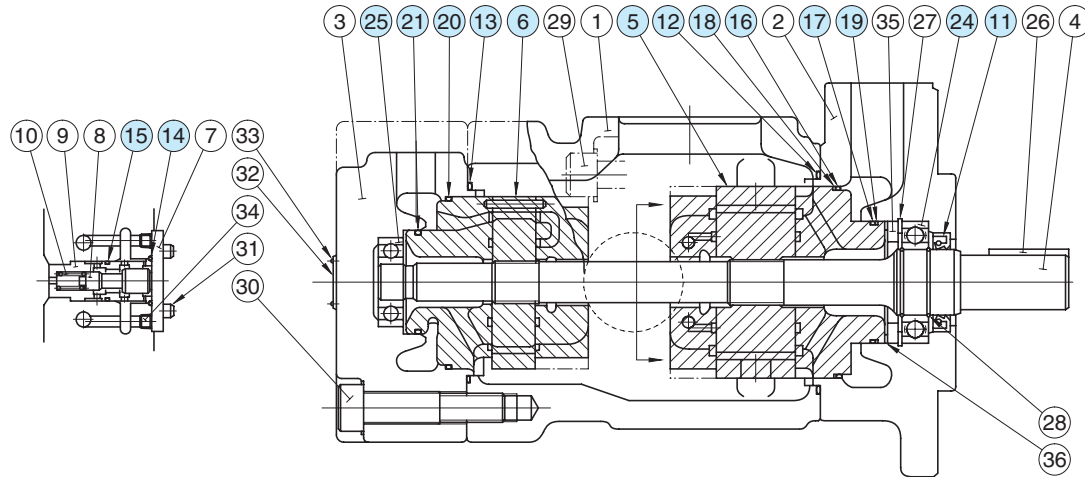
★ When ordering seals, please specify the seal kit number from the table right.

List of Seal Kits

Pump Model Numbers	Seal Kit Numbers
PV2R12-**-**-REAA-42*	KS-PV2R12-40
PV2R13-**-**-RAAA-42*	KS-PV2R13-40
PV2R23-**-**-REAA-41*	KS-PV2R23-40
PV2R33-**-**-RAAA-31*	KS-PV2R33-30

Spare Parts List

PV2R14-**-**-RAAA-32/3290
 PV2R24-**-**-RAAA-31/3190
 PV2R34-**-**-REAA-31/3190



Cartridge Kits

Model Numbers	Cartridge Kit Numbers		Model Numbers	Cartridge Kit Numbers	
	⑥ Small Volume Pump	⑤ Large Volume Pump		⑥ Small Volume Pump	⑤ Large Volume Pump
PV2R14-6-★-**-RAAA-32*	CPV2R13-6-L-42	CPV2R2 -★-R-41	PV2R24-26-★-**-RAAA-31*	CPV2R23-26-L-41	CPV2R4 -★-R-30
PV2R14-8-★-**-RAAA-32*	CPV2R13-8-L-42		PV2R24-33-★-**-RAAA-31*	CPV2R23-33-L-41	
PV2R14-10-★-**-RAAA-32*	CPV2R13-10-L-42		PV2R24-41-★-**-RAAA-31*	CPV2R23-41-L-41	
PV2R14-12-★-**-RAAA-32*	CPV2R13-12-L-42		PV2R24-47-★-**-RAAA-31*	CPV2R23-47-L-41	
PV2R14-14-★-**-RAAA-32*	CPV2R13-14-L-42		PV2R34-52-★-**-REAA-31*	CPV2R33-52-L-31	CPV2R34 -★-R-31
PV2R14-17-★-**-RAAA-32*	CPV2R13-17-L-42		PV2R34-60-★-**-REAA-31*	CPV2R33-60-L-31	
PV2R14-19-★-**-RAAA-32*	CPV2R13-19-L-42		PV2R34-66-★-**-REAA-31*	CPV2R33-66-L-31	
PV2R14-23-★-**-RAAA-32*	CPV2R13-23-L-42		PV2R34-76-★-**-REAA-31*	CPV2R33-76-L-31	
		PV2R34-94-★-**-REAA-31*	CPV2R33-94-L-31		
		PV2R34-116-★-**-REAA-31*	CPV2R33-116-L-31		

Note: The ★ marks are a spaces for large volume pump nominal displacement. Referring to the model No. designation on page 181, write the correct nominal displacement figures.

Seals & Bearings

Item	Name of Parts	Part Numbers			Qty.
		PV2R14	PV2R24	PV2R34	
11★	Oil Seal	ISD 45 68 12	ISD 45 68 12	ISD 45 68 12	1
12★	O-Ring	SO-NB-G145	SO-NB-G145	SO-NB-G145	1
13★	O-Ring	SO-NB-G80	SO-NB-G105	SO-NB-G135	1
14★	O-Ring	SO-NB-P28	SO-NB-P28	SO-NB-P28	1
15★	O-Ring	SO-NB-P22A	SO-NB-P22A	SO-NB-P22A	1
16★	O-Ring	SO-NA-G130	SO-NA-G130	SO-NA-G130	1
17★	O-Ring	SO-NA-G80	SO-NA-G80	SO-NA-G80	1
18★	Back Up Ring	SO-BE-G130	SO-BE-G130	SO-BE-G130	1
19★	Back Up Ring	SO-BB-G80	SO-BB-G80	SO-BB-G80	1
20★	O-Ring	SO-NB-G60	SO-NB-G85	SO-NB-G115	1
21★	O-Ring	SO-NB-G30	SO-NB-P46	SO-NB-A231	1
24	Bearing	6209	6209	6209	1
25	Bearing	—	—	6305	1

Note: 1) The o-rings and back up rings under item. Nos. ⑩ to ⑲ are included in the large volume pump cartridge kit and those under item. Nos. ⑳ and ㉑ in the small volume pump cartridge kit.

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

★ When ordering seals, please specify the seal kit number from the table right.

List of Seal Kits

Pump Model Numbers	Seal Kit Numbers
PV2R14-**-**-RAAA-32*	KS-PV2R14-30
PV2R24-**-**-RAAA-31*	KS-PV2R24-30
PV2R34-**-**-REAA-31*	KS-PV2R34-30

