



VVARAK
HYDRAULICS

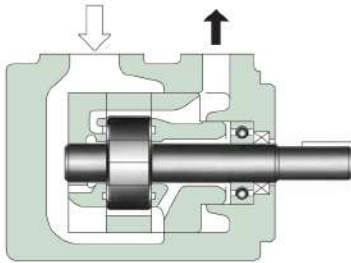


V A N E P U M P S



HI-TECH HYDRAULICS

"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 (.354 to 14.46 cu.in./rev). The integral 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



PV2R1	-6	-L	-R	A	A
Series Number	Nominal Displacement cm ³ /rev	Type of Mounting	Shaft Rotation	Discharge Port Position	Suction Port Position
PV2R1	6,8,10,12 14,17,19 23,25,31	L: Foot Mounting F: Flange Mounting	(Viewed from Shaft End)		
PV2R2	41,47,53 59,65		R: Clockwise* (Normal)	A: Upwards (Normal)	A: Upwards (Normal)
PV2R3	76,94,116				
PV2R4	136,153,184 200,237				

* Available to supply pump with anti-clockwise rotation

Specifications

Model Numbers	Geometric Displacement cm ³ /rev (cu.in./rev)	Max. Operating Pressure MPa (PSI)						Shaft Speed Range r/min	
		Petroleum Base Oils		Water Containing Fluids			Synthetic Fluids	Max.	Min.
		Anti-Wear Type	R & O Type	Anti-Wear* 1 Type Water Glycols	Water Glycols	Water In Oil Emulsions	Phosphate Esters		
PV2R1-6	5.8 (.354)	21 (3050)	16 (2320)	16 (2320)	7 (1020)	7 (1020)	16 (2320)	1800 (1200) ⁺⁴	750 ⁺⁵
PV2R1-8	8.0 (.488)								
PV2R1-10	9.4 (.574)								
PV2R1-12	12.2 (.744)								
PV2R1-14	13.7 (.836)								
PV2R1-17	16.6 (1.013)								
PV2R1-19	18.6 (1.135)								
PV2R1-23	22.7 (1.385)	16 (2320)	14 (2030)	16 (2320)	7 (1020)	7 (1020)	14 (2030)	1800 (1200) ⁺⁴	600 ⁺⁵
PV2R1-25	25.3 (1.544)								
PV2R1-31	31.0 (1.892)	21 (3050)	14 (2030)	16 (2320)	7 (1020)	7 (1020)	14 (2030)	1800 (1200) ⁺⁴	600
PV2R2-41	41.3 (2.52)	21 (3050)	14 (2030)	16 (2320)	7 (1020)	7 (1020)	14 (2030)	1800 (1200) ⁺⁴	600 ⁺⁵
PV2R2-47	47.2 (2.88)								
PV2R2-53	52.5 (3.20)	21 (3050)	14 (2030)	16 (2320)	7 (1020)	7 (1020)	14 (2030)	1800 (1200) ⁺⁴	600
PV2R2-59	58.2 (3.55)								
PV2R2-65	64.7 (3.95)	21 (3050)	14 (2030)	16 (2320)	7 (1020)	7 (1020)	14 (2030)	1800 (1200) ⁺⁴	600
PV2R3-76	76.4 (4.66)								
PV2R3-94	93.6 (5.71)	16 (2320)	14 (2030)	16 (2320)	7 (1020)	7 (1020)	14 (2030)	1800 (1200) ⁺⁴	600
PV2R3-116	115.6 (7.05)	17.5 (2540)	14 (2030)	16 (2320)	7 (1020)	7 (1020)	14 (2030)	1800 (1200) ⁺⁴	600
PV2R4-136	136 (8.30)								
PV2R4-153	153 (9.34)	17.5 (2540)	14 (2030)	16 (2320)	7 (1020)	7 (1020)	14 (2030)	1800 (1200) ⁺⁴	600
PV2R4-184	184 (11.23)								
PV2R4-200	201 (12.27)	17.5 (2540)	14 (2030)	16 (2320)	7 (1020)	7 (1020)	14 (2030)	1800 (1200) ⁺⁴	600
PV2R4-237	237 (14.46)								

* 1. For the brands of anti-wear type water-glycols, see the item of "Hydraulic Fluids" on page 160.

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

* 3. If PV2R4-237 is used at speed above 1700 r/min, the suction pressure is limited to -13 kPa (3.94 in. Hg. vacuum).

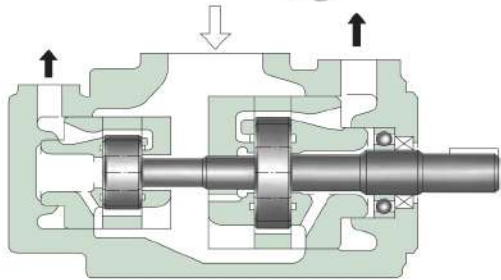
* 4. If phosphate ester or water containing fluids are used, the maximum speed is limited to 1200 r/min.

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

* 6. For pressure above 16 MPa (2320 PSI), raise the speed over 1450 r/min.

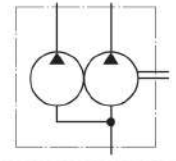


"PV2R" Series Double Vane Pumps



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



PV2R13	-6	-76	-L	-R	A	A	A	
Series Number	Small Volume Pump Nominal Displacement cm ³ /rev	Large Volume Pump Nominal Displacement cm ³ /rev	Mounting	Direction of Rotation	Small Vol. Pump Discharge Port Position	Large Vol. Pump Discharge Port Position	Suction Port Position	
(Viewed from Shaft End)								
PV2R12	6,8,10,12 14,17,19 23,25,31	26, 33, 41 47, 53, 59 65	L: Foot Mtg	R : Clockwise* (Normal)	E : Left 45° Upwards (Normal)	A: Upwards (Normal)	A: Upwards (Normal)	
PV2R13	6,8,10,12 14,17,19 23,25,31	76, 94, 116			A : Upwards (Normal)			
PV2R23	41,47,53 59,65	52, 60, 66, 76, 94, 116			E : Left 45° Upwards (Normal)			
PV2R33	76, 94, 116	76, 94, 116			A : Upwards (Normal)			
PV2R14	6,8,10,12 14,17,19, 23	136, 153 184, 200 237			F: Flange Mtg			A : Upwards (Normal)
PV2R24	26, 33, 41, 47							A : Upwards (Normal)
PV2R34	52, 60, 66 76, 94, 116		E : Left 45° Upwards (Normal)					

* Available to supply pump with anti-clockwise rotation

Specifications

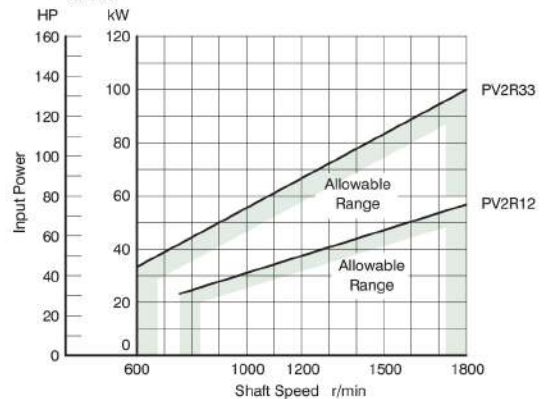
Maximum Operating Pressure

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	Water Glycols	Water in Oil Emulsions	Phosphate Esters						
6	21 [Ⓟ] (3050)											
8												
10												
12												
14	21 (3050)	16 (2320)	16 (2320)	7 (1020)	7 (1020)	16 (2320)						
17												
19												
23 * 3												
25	21 (3050)	16 (2320)										
31	16 (2320)											
26	21 (3050)						14 (2030)	16 (2320)	7 (1020)	7 (1020)	14 (2030)	
33												
41												
47												
53	21 (3050)	14 (2030)	16 (2320)	7 (1020)	7 (1020)	14 (2030)						
59												
65												
52							16 (2320)					
60												
66												
76												
94	16 (2320)											
116												
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.

	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	PV2R23	PV2R24	PV2R34			
33						
41						
47						
53						
59						
65						
52				PV2R33	PV2R34	PV2R34
60						
66						
76						
94						
116						

Note: 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



* 1. For the brands of anti-wear type water-glycols, see the item of "Hydraulic Fluids" on page 160.

* 2. For pressure 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).





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