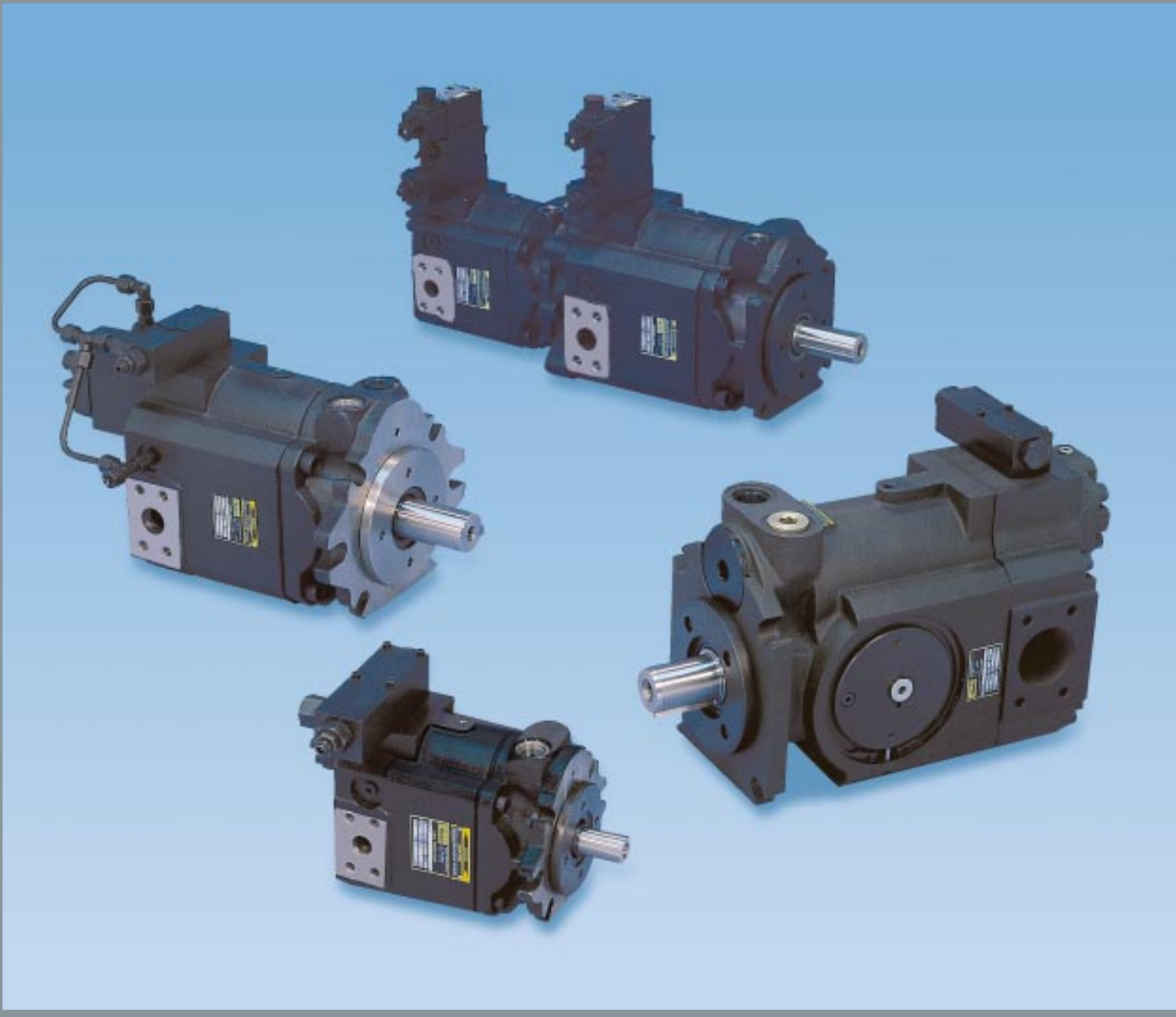
Parker Hydraulics

Series PV Variable Volume Piston Pumps

Catalog 2600-600-2/USA



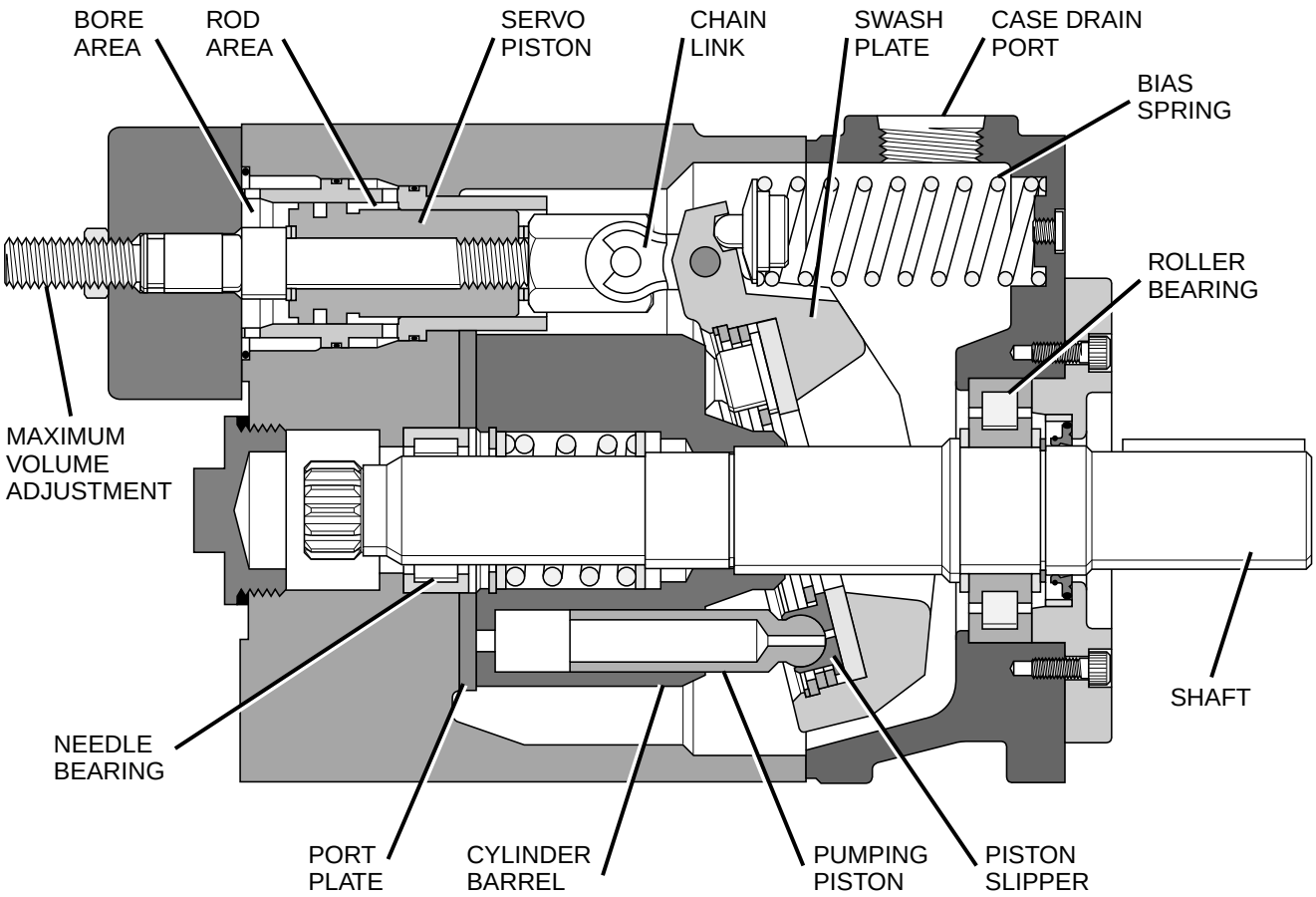
Introduction

General Description

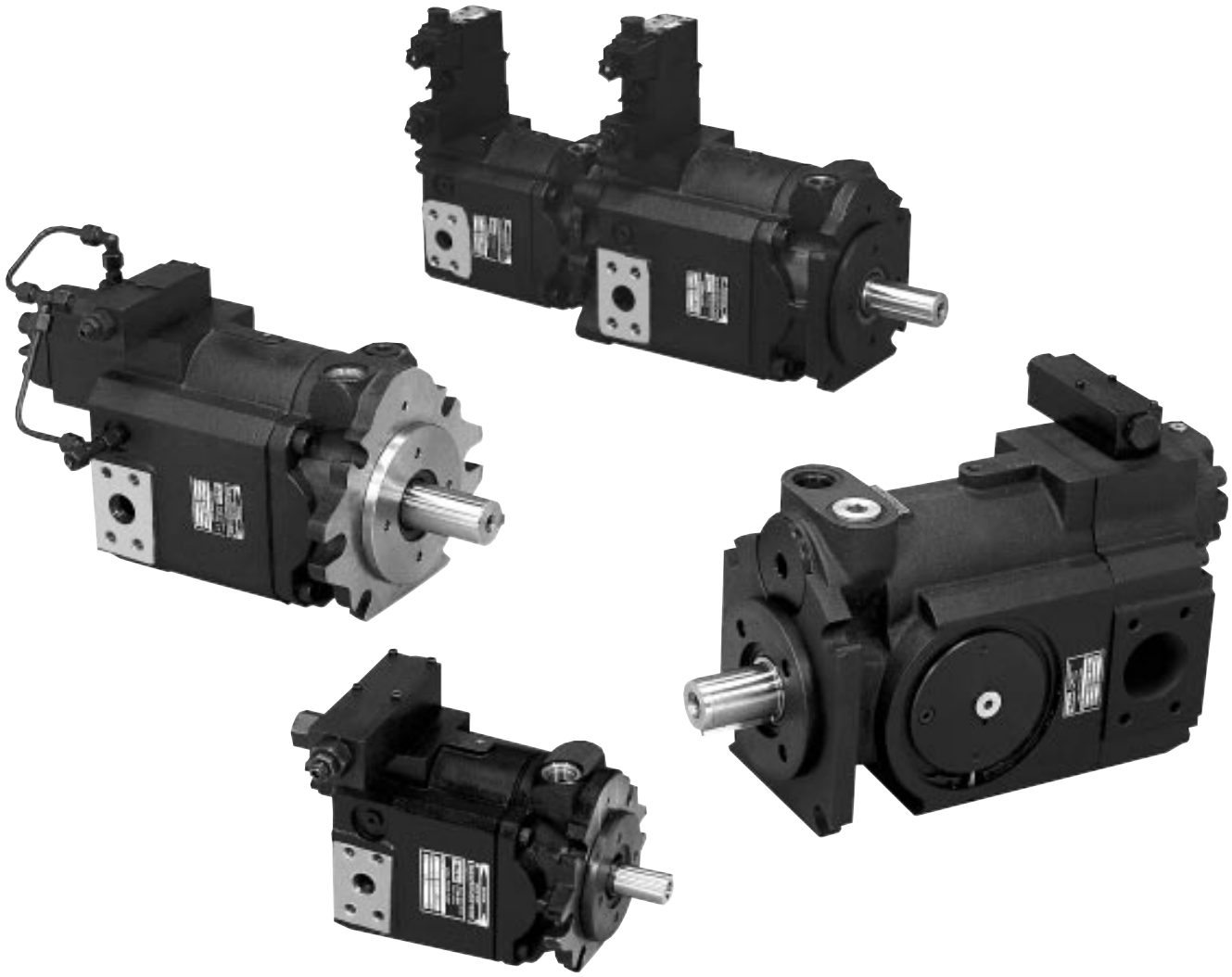
All control of the pump outlet flow is achieved by the proper positioning of the swash plate. Control is accomplished when the bore area forces of the servo piston acting on one end of the swash plate working against the combined effects of the bias spring, and the rod area forces of the servo piston acting on the other end.

As the shaft in the figure below is rotated by a prime mover, it in turn rotates the cylinder barrel. As the cylinder barrel rotates, it drives the pumping pistons in a circular path with the piston slippers supported hydrostatically against the angled swash plate. In one-half of the revolution, the pumping pistons are forced away from the port plate drawing in fluid, and in the other half of the revolution, the pumping pistons are forced toward the port plate driving out fluid.

The volume of fluid the pump will displace in one revolution of the shaft is dependent upon the area of the pumping piston, the number of pumping pistons and the angle of the swash plate. The swash plate is shown at maximum angle and will produce maximum displacement. As the swash plate is moved toward a vertical position (perpendicular to shaft centerline), the displacement will decrease until it reaches the vertical position and displacement is zero.



Introduction



Quick Reference Data Chart

Pump Model	Displacement cc/rev (in^3/rev)	Pump Delivery @ 100 PSI (7 bar) in GPM (LPM)		*Approx. Noise Levels dB(A) @ Full Flow and 1500 RPM			Horsepower At 1800 RPM, Max. Displacement & 5000 PSI	Max. Operating Speed (PRM)
		1200 RPM	1800 RPM	1000 PSI (69 bar)	3000 PSI (207 bar)	5000 PSI (345 bar)		
PV016	16 (.98)	5.1 (19.2)	7.6 (28.8)	56	61	68	22.5	2750
PV020	20 (1.22)	6.3 (24.0)	9.5 (36.0)	56	61	68	33.8	2750
PV023	23 (1.40)	7.3 (27.6)	10.9 (41.4)	56	61	68	38.6	2750
PV032	32 (1.95)	10.1 (38.4)	15.2 (57.6)	59	63	69	48.3	2400
PV040	40 (2.44)	12.7 (48.0)	19.0 (72.0)	59	63	69	62.8	2400
PV046	46 (2.81)	14.6 (55.2)	21.9 (82.8)	59	63	69	72.4	2400
PV063	63 (3.84)	20.0 (75.6)	30.0 (113.4)	63	68	73	99.8	2100
PV080	80 (4.88)	25.4 (96.0)	38.0 (144.0)	63	68	73	122.3	2000
PV092	92 (5.61)	29.2 (110.4)	43.8 (165.6)	63	68	73	144.8	1900
PV130	130 (7.93)	41.2 (156.0)	61.8 (234.0)	77	82	83	205.0	1800
PV180	180 (10.98)	57.1 (216.0)	85.6 (324.0)	79	84	86	284.0	1800
PV250	250 (15.26)	79.3 (300.0)	97.5 (369.0)	81	86	88	320.7	1800

* The noise level values are based on anechoic room measurements at a distance of 1 meter in accordance with DIN 45645.

Installation Information

Use of a Relief Valve

The use of a relief valve, while not mandatory is recommended in the main circuit to suppress hydraulic shock loads and adds additional system protection.

Fluid Recommendations

Premium quality hydraulic oil with a viscosity range between 150-250 SSU (30-50 cst.) at 100°F (38°C). Normal operating viscosity range between 80-1000 SSU (17-180 cst.). Maximum start-up viscosity is 4000 SSU (1000 cst.).

NOTE: Consult Parker when exceeding 160°F (71°C) operation. Oil should have maximum anti-wear properties, rust and oxidation treatment.

Filtration

For maximum pump and system component life, the system should be protected from contamination at a level not to exceed 125 particles greater than 10 microns per milliliter of fluid. (SAE Class 4/ISO 16/13.) Due to the nature of variable displacement pumps, variations in pump inlet conditions, fluid acceleration losses, system aeration, and duty cycle we do not recommend suction line filters. We do recommend the use a properly sized, in-tank, suction strainer. Contact your Parker representative for assistance.

Start-Up

On initial start-up, the pump case must be filled with fluid. Pressure adjustments should be reduced and the circuit should be open to permit priming.

Special Installations

Consult your Parker representative for any application requiring the following:

Pressure above rated, drive speed above maximum, indirect drive, fluid other than petroleum oil, fluid temperature above 160°F (71°C).

Shaft Rotation and Line Up

Pump and motor shaft alignment must be within .010 TIR maximum, using a standard floating coupling. Please follow coupling manufacturer's recommended installation instructions to prevent end thrust on pump shaft. Turn pump to assure freedom of rotation. Pump and motor must be on a rigid base.

The coupling should be sized to absorb the peak horsepower developed.

Installation and Mounting

When mounting a PV Series Pump, the "case drain" must be on top of the pump. The "case drain" should be a separate line unrestricted to the reservoir and extend below the oil level as far from the inlet line as possible. The "case drain" line must not exceed 10 PSI (.69 bar) back pressure.

The "case drain" line should be as large in diameter as possible and as short in length as possible. Suggested maximum line length is 10 ft.

Check that the driving motor rotates in the same direction as indicated by the rotation arrow on the pump.