## Quick Reference Data Chart

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Theoretical Displacement CU. IN/REV. (CM³/REV.)</th>
<th>Delivery GMP (LPM) @ 100 PSI/7 Bar &amp; 1800 RPM</th>
<th>Operating Speed RPM (Maximum)</th>
<th>Pressure PSI (Bar) (Maximum)</th>
<th>Input Horsepower @ Max. PSI &amp; 1800 RPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVV 125</td>
<td>7.63 (125)</td>
<td>59 (223.6)</td>
<td>1800</td>
<td>2500 (172)</td>
<td>95</td>
</tr>
<tr>
<td>PVV 142</td>
<td>8.67 (142)</td>
<td>66 (250.1)</td>
<td>1800</td>
<td>2000 (138)</td>
<td>87</td>
</tr>
</tbody>
</table>

## Features
- High Overall Efficiency
- Low Noise Levels
- Good Suction Conditions
- Sleeve Bearing Construction
- Shock Suppressor
- Built In Automatic Airbleed
- Thru-Shaft Design

## Controls
- Standard Remote Control Compensator
- Maximum Flow Limiter
- Remote Compensator
- Load Sensing
- Electrohydraulic Flow and/or Pressure
- Torque Control

## Pressure Capabilities
- PVV 125 — 2500 PSI (172 Bar) Continuous
- PVV 142 — 2000 PSI (138 Bar) Continuous

## Speed Capabilities
- PVV 125 — 1200 to 1800 RPM
- PVV 142 — 800 to 1800 RPM
Variable Volume Vane Pumps
Series PVV

Introduction

For additional information – call your local
Parker Fluidpower Motion & Control Distributor.
**Introduction**

**General Description**

Vane pumps generate a pumping action by causing vanes to track along a cam ring.

The pumping mechanism basically consists of a rotor, vanes, a cam ring, and closely fitting side plates.

The rotor houses the vanes and is an integral part of the shaft which is connected to a prime mover. As the rotor is turned, vanes are thrown out by centrifugal force and track along the cam ring. As the vanes make contact, a seal is formed between vane tip and cam ring.

The cam ring is positioned off-center to the rotor. As the rotor is turned, an increasing and decreasing volume is formed between vane tip and cam ring.

**Maximum Flow**

The amount of fluid a vane pump displaces is determined by the maximum and minimum distance the vanes are extended and the width of the vanes.

Since there are no ports in the ring, one of the side plates incorporates ports which separate incoming from outgoing fluid. This plate is referred to as the port plate. The inlet port of the port plate is located where the increasing volume is formed. The port plate's outlet port is located where the decreasing volume is generated. All fluid enters and exits the pumping mechanism through the port plate. The inlet and outlet ports in the port plate are, of course, connected respectively to the inlet and outlet ports in the pump housing.

Before a vane pump can operate properly, a positive seal must exist between vane tip and cam ring. When a vane pump is started, centrifugal force is relied on to throw the vanes outward and achieve a seal.

Once the pump is primed and system pressure begins to rise, a tighter seal must exist at the vane so that leakage does not increase across the vane tip. To generate a better seal at higher pressures, system pressure is directed to the underside of the vane. With this arrangement, the higher a system pressure becomes the more force is developed to push the vane out against the cam ring.

Hydraulically loading a vane in this manner develops a very tight seal at the vane tip. But, if the force loading the vane is too great, vanes and cam ring would wear excessively and the vanes would be a source of drag.

To achieve the best seal and cause the least drag and wear, Parker designs their pumps so that the vanes are only partially loaded.

The use of vanes with a chamfer or beveled edge eliminates high vane loading. The complete underside of the vane area is exposed to system pressure as well as a large portion of the area at the top of the vane.

Parker PVV series vane pumps are pressure compensated units. They are designed to provide only the flow required by the system to accomplish useful work. Pump output flow is controlled by causing the cam ring to reposition itself about the rotor. When the cam ring is centered about the rotor no output flow occurs.

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Hydraulic Pump/Motor Division
Otsego, MI 49078
Introduction

PVV Features

Shock Suppressor

The PVV 125/142 compensators include a built-in shock suppressor. Any pressure, such as shock pressure, that exceeds 200 PSI (14 bar) above the setting of the compensator spring allows flow from the pressure port to the pumps suction cavity. This momentary opening knocks the peak from any severe shock condition caused by the system.

The actual magnitude of the shock in a system with or without this feature depends upon operating conditions such as the rate of change of flow, the size of the system, the magnitude of volume change, and the shock absorbing ability of the system lines and components. Generally, the reduction in shock between a system that does not have this feature compared to a system that does is approximately one-half. In systems with low capacitance and/or directional control valves mounted close to outlet, a system relief valve is recommended set approximately 300 PSI (21 Bar) above maximum pump pressure.

High Overall Efficiency

The hydrostatic clearance control is the main feature that makes it possible for this pump to operate at high overall efficiency. This feature also compensates for wear, which helps to maintain the high efficiency throughout the life of the pump. This high overall efficiency is measured on production pumps running at 2000 PSI (138 Bar), 1800 RPM, with an oil viscosity of 150 SSU.

Hydrostatic bearing pockets, located in the side plates, maintain approximately a .0004 inch clearance between the side plates and the cam ring and a .0008 inch clearance between the side plates and rotor. The design of the hydrostatic feature is such that a change of viscosity does not influence the clearance.

When a 65 gallon pump runs at 85 to 90% overall efficiency, the amount of heat energy that is lost due to this inefficiency is not readily apparent. A 65 gallon pump operating at 2000 PSI (138 Bar) would have the following horsepower loss:

<table>
<thead>
<tr>
<th>90% Overall Efficiency</th>
<th>85% Overall Efficiency</th>
<th>80% Overall Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.43 HP Loss</td>
<td>13.38 HP Loss</td>
<td>18.96 HP Loss</td>
</tr>
</tbody>
</table>

A phenomenon that is not generally recognized in variable volume pumps is the fact that inefficiencies, or horsepower loss, of a pump will remain nearly constant through the whole volume range; therefore, the 90% overall efficient pump will have approximately 8.43 HP heat loss throughout the full flow range. Since there is no useful work being done, all of this horsepower goes into heat. It is obvious that the 80% and 85% efficient pumps generate considerably more heat horsepower than the 90% pump. In fact, the 80% pump at 18.96 HP loss is more than twice the heat generated by the 90% pump.
Introduction

**Double Suction Ports**
The PVV 125 and PVV 142 introduces fluid at both side plates. This double suction feature assists in supplying oil to the pumping cavity. Inlet conditions at pump speeds of 1800 RPM and cold, high viscosity fluids are improved.

**Manual Volume Control**
For some applications it is desirable to limit a pump's maximum displacement. This function is accomplished with a manual volume adjustment. The adjustment can be turned in or out to limit the maximum travel of the bias piston. This in turn limits cam ring travel and maximum pump output.

**Automatic Airbleed**
Air in the pumping cavity on initial start-up, or that may have leaked in over a long shutdown period, should be dispelled from the system. A pump may fail to prime if this air is not removed. If the air is not removed and the pump does prime, the air will be forced into the fluid. This dissolved air content may show up as cavitation.

The PVV 125/142 automatically discharges the air into the case and out the case drain line until there is oil in the pumping cavity. A hole in the bias piston is uncovered by a ball and spring, which allows air to escape. When oil enters the pumping cavity, pressure is created to reseat the ball which closes the hole in the bias piston.

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Hydraulic Pump/Motor Division
Otsego, MI 49078
Standard Remote Compensator (M)
The standard remote compensator consists, basically, of a compensator body, preset compensator spring, compensator spool and an adjustable direct operated relief section.

Pressure is directed to the right end of the compensator spool via the axial hole in the spool. Pressure is also directed to the left end of the compensator spool via the orifice in the spool. When the pressure at both ends of the spool is equal, the compensator spring holds the compensator spool to the right and system pressure is applied to the servo piston forcing the cam ring to the maximum flow position. (Note: The area of the servo piston is approximately twice the area of the bias piston when the pressure on both pistons is equal. The force of the servo piston will be greater and the cam ring will be forced to its maximum flow operation position.)
Introduction

When the setting of the direct operated relief section of the compensator is reached, the dart moves off its seat. This limits the pressure in the spring cavity which is applied to the left end of the compensator spool. The spring biases the spool with a force equivalent to 225 PSI (16 Bar). Therefore when system pressure reaches 225 PSI (16 Bar) above the pressure in the spring cavity, the compensator spool moves to the left. Pressure is bled from the servo piston and the cam ring moves to the no flow position.

Remote Operation

A remote control port is provided for connecting externally mounted, direct operated relief valves to control the compensating pressure of the pump. The setting of an external relief must be lower than that of the pumps built-in relief. Multiple relief valves or electrically modulated relief valves can also be used.
Introduction

Electrohydraulic Flow And Pressure Control

The Parker electrohydraulic system, for flow and pressure control, functions by adjusting the pressure compensator setting to maintain a desired flow output. A transducer built into the pump, gives a feedback signal proportional to the cam ring offset (pump displacement).

The control amplifier board automatically adjusts the pressure setting of the pump to keep this feedback signal equal to the commanded flow signal. A pressure limit signal may also be inputted to the control board, functioning as a "not to exceed" command.

Components required for electrohydraulic flow control operation are the "S" or "SE" pump option, control amplifier board, proportional pressure control valve, and special sequence valve.

The amplifier board contains the control elements, output elements, and a power supply (120 VAC primary). Input signals may be constant signals, step inputs, or waveforms.

For additional information – call your local Parker Fluidpower Motion & Control Distributor.
Introduction

Peak Pressure
Even with a short response time for maximum to minimum volume, there is a peak pressure for a short time which is greater than the set pressure of the compensator. The peak pressure depends on the volume of the system, on the working pressure and on the output of the pump.

For systems where pressure peaks could exceed pump continuous pressure rating by 15%, a relief valve must be used to eliminate hydraulic shock. The pressure setting of the relief valve should be 300 PSI (21 bar) above the compensator setting. This relief valve also functions as an ultimate system protection in the case of a control circuit failure.

Power Consumption
The power consumption (P) of the pump is the product of the flow rate (Q) and the pressure (p) and depends on the efficiency. With constant flow rate, the power consumption increases with pressure. When the working pressure reaches the compensating pressure, the flow rate will reduce to that required by the system and the power consumption will reduce. The performance characteristic shows the relationship that power consumed has to flow rate and pressure. In a partly compensated position, where the system is demanding some flow, a typical power consumption would be at point P₁. If no flow is required, the power consumption point would be P₀.
Performance Data
Series PVV 125, 142 Pressure Compensated, Variable Volume, Piston Pumps

Features
- High Overall Efficiency
- Low Noise Levels
- Good Suction Characteristics
- Mineral Oils and, With Restrictions, Water Glycol Fluids. Consult Factory for Special Fluids
- Sleeve Bearing Construction
- Shock Suppressor
- Built In Automatic Airbleed
- Thru-Shaft Design

Controls
- Standard Remote Control Compensator
- Maximum Flow Limiter
- Remote Compensator
- Load Sensing
- Electrohydraulic Flow and/or Pressure
- Torque Control

Specifications
Flow Ratings*: PVV 125 — 59 GPM (223.6 LPM)
 PVV 142 — 66 GPM (250.1 LPM)
 *At 100 PSI (7 Bar) and 1800 RPM
Pressure Ratings: PVV 125 — 2500 PSI (172 Bar)
 Continuous
 PVV 142 — 2000 PSI (138 Bar)
 Continuous
Speed Ratings: PVV 125 — 1200 to 1800 RPM
 PVV 142 — 800 to 1800 RPM
Mounting: SAE — 2 Bolt Flange Mount
(Optional Foot Mount Available)
Housing Material: Cast-Iron

Schematic Symbol
(Basic Pump)

Installation Data
Inlet Conditions: 7 In. Hg. Max. Vacuum Condition
(At 1200 RPM)
5 In. Hg. Max. Vacuum Condition
(At 1800 RPM)
Operating Temperature Range: −40°F (−40°C) to
160°F (71°C)
Filtration: Maintain SAE Class 4

See Installation Section of this catalog for specific
recommendations pertaining to system cleanliness,
fluids, start-up, inlet conditions, shaft alignment,
drain line restrictions and other important factors
relative to the proper installation and use of these
pumps.

Quick Reference Data Chart

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Theoretical Displacement (CM³/REV.)</th>
<th>Delivery GPM (LPM) @ 100 PSI/7 Bar &amp; 1800 RPM</th>
<th>Operating Speed RPM (Maximum)</th>
<th>Pressure PSI (Bar) (Maximum)</th>
<th>Input Horsepower @ Max. PSI &amp; 1800 RPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVV 125</td>
<td>7.63 (125)</td>
<td>59 (223.8)</td>
<td>1800</td>
<td>2500 (172)</td>
<td>95</td>
</tr>
<tr>
<td>PVV 142</td>
<td>8.67 (142)</td>
<td>66 (250.1)</td>
<td>1800</td>
<td>2000 (138)</td>
<td>87</td>
</tr>
</tbody>
</table>

For additional information – call your local Parker Fluidpower Motion & Control Distributor.
Performance Data

Based On Oil Temperature of 110°F. (43°C.) (130 SSU) Atmospheric Inlet

**1200 RPM**

<table>
<thead>
<tr>
<th>PRESSURE – PSI (BAR)</th>
<th>Volumetric Efficiency</th>
<th>Overall Efficiency</th>
<th>Flow</th>
<th>Compensated HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>(379.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>500</td>
<td>(34)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td>(69)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1500</td>
<td>(103)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>(138)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2500</td>
<td>(172)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**1800 RPM**

<table>
<thead>
<tr>
<th>PRESSURE – PSI (BAR)</th>
<th>Volumetric Efficiency</th>
<th>Overall Efficiency</th>
<th>Flow</th>
<th>Compensated HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>(379.0)</td>
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<td>500</td>
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</tr>
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<td>1500</td>
<td>(103)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>(138)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2500</td>
<td>(172)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** The efficiencies and data in the graph are nominal values and good only for pumps running 1800 RPM and stroked to maximum. To calculate approximate horsepower for the other conditions, use the following formula:

\[
HP = \left( \frac{Q \times (PSI)}{1714} \right) + (CHp) \times \frac{N}{1800}
\]

Actual GPM is directly proportional to drive speed and maximum volume setting. Flow loss, however, is a function of pressure only.

WHERE:

- \( Q \) = Actual Output Flow In GPM
- \( PSI \) = Pressure At Pump Outlet
- \( CHp \) = Input Horsepower @ Full Compensation @ 1800 RPM (from graph read at operating pressure)
- \( N \) = Drive Speed In RPM
Performance Data — Horsepower Control Option (Code “H”)
Typical Input Horsepower Required & Flow Characteristics vs. Pressure
(At Various HP Limiter Settings)

PVV 125

1200 RPM

1800 RPM

PVV 142

1200 RPM

1800 RPM

For additional information – call your local Parker Fluidpower Motion & Control Distributor.
Dimensions — Standard Remote Compensated Pump
(Rear Ported)

Millimeter equivalents for inch dimensions are shown in (**).
Variable Volume Vane Pumps
Series PVV 125/142

Technical Information

Dimensions — Thru-Shaft Pump

Millimeter Equivalents For Inch Dimensions Are Shown In (**)  

OUTLET 1

MOUNTING SURFACE X

INLET 1

MOUNTING SURFACE X

PVV 142 Side Ported & Rear Mount Variations Shown

1. See standard pump for dimensions not shown.
2. These variations correspond to SAE standards for 2 bolt, short straight shaft, flange mount pumps.
3. Compensator not shown for clarity of pump.

<table>
<thead>
<tr>
<th>Variation</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>6AH</td>
<td>12.04 (305.82)</td>
<td>4.188 (106.38)</td>
<td>3.251/3.252 (82.59/82.60)</td>
<td>3/8-16 UNC-2B Thd. Thru</td>
<td>2.67 (67.82)</td>
</tr>
<tr>
<td>6B</td>
<td>12.54 (318.52)</td>
<td>5.750 (146.06)</td>
<td>4.001/4.002 (101.63/101.65)</td>
<td>1/2-13 UNC-2B Thd. Thru</td>
<td>3.02 (76.71)</td>
</tr>
<tr>
<td>6C</td>
<td>13.54 (343.92)</td>
<td>7.125 (180.96)</td>
<td>5.001/5.002 (127.03/127.05)</td>
<td>5/8-11 UNC-2B Thd. Thru</td>
<td>4.24 (107.70)</td>
</tr>
<tr>
<td>6D</td>
<td>13.54 (343.92)</td>
<td>9.000 (228.60)</td>
<td>6.001/6.002 (152.43/152.45)</td>
<td>3/4-10 UNC-2B Thd. Thru</td>
<td>4.06 (103.12)</td>
</tr>
<tr>
<td>6BH</td>
<td>12.54 (318.52)</td>
<td>5.750 (146.06)</td>
<td>4.001/4.002 (101.63/101.65)</td>
<td>1/2-13 UNC-2B Thd. Thru</td>
<td>3.41 (86.61)</td>
</tr>
</tbody>
</table>

For additional information – call your local Parker Fluidpower Motion & Control Distributor.
**Variable Volume Piston Pumps**

**Series PVV 125/142**

**Dimensions — Electrohydraulic Pump**

Millimeter equivalents for inch dimensions are shown in (**) .

**NOTES:**

1. Consult factory for information relative to pump option selection and additional components required for desired pump function.
2. For electrohydraulic flow and pressure control of one or two pumps make electrical connections per Fig. IV. When one pump is used, omit connections to pump #2 feedback.
3. For electrohydraulic flow only, eliminate pressure command signal and place jumper between “Press CMD” and “+ 10V” terminals (compensating pressure will be controlled by manual adjustment on the remote compensator).
4. For electrohydraulic pressure only, eliminate volume command signal, and place jumper between “VOL CMD” and “+ 10V” terminals or use 801179 pressure driver card.
5. Figures I thru III show nominal input vs. output relationships. The actual values will vary with component tolerances. Full volume range will be realized with 0 to 7 volts. Full pressure range will be realized with 0 to 8 volts, or 0-600MA.

**Typical Hookup for Infinitely Variable Electrohydraulic Press and Volume Control**

**FIG. IV**

**FIG. I**

**Volume Command Voltage**

Nominal output flow vs. input command voltage when used in conjunction with AP11 (single pump amp.) and 694586 proportional pressure controller.

**FIG. II**

**Pressure Command Voltage**

Nominal output pressure vs. input command voltage when used in conjunction with AP11 or AP211 and 694586 proportional pressure controller.

**FIG. III**

**Input Current (MA)**

Nominal input current vs. pressure when used in conjunction with a current source and proportional pressure controller 694586.
Variable Volume Vane Pumps
Series PVV 125/142

Dimensions — Accessories
Millimeter Equivalents For Inch Dimensions Are Shown In (***)

Foot Mounting Bracket
Part No. 800407

Two Pump Mount Bolts
Part No. 800447

Flange Kits
All Flange Kits Include Flange, O-Rings and Cap Screws. See Order Sheet For Part Numbers.

For Inlet Port
2-1/2” SAE

For Outlet Port
2” SAE

For additional information – call your local Parker Fluidpower Motion & Control Distributor.
Variable Volume Vane Pumps
Series PVV 125/142

Ordering Information

PVV
Pump Vane Type
Displacement
Variable Displacement

125 125cc/Rev.
142 142cc/Rev.

Series

PVV 125 Only
25 450° — 2500 PSI (172 Bar)

*500 Minimum on S and SE options

Pressure Range

10 450° — 1000 PSI (69 Bar)
20 450° — 2000 PSI (136 Bar)

Shaft

Port Options

Omit Rear Flange
2 Side

Rotation

R Right (CW)
L Left (CCW)

*Viewed from shaft end

Variations

Omit Standard Pump
2 Maximum Volume Stop
3 Vanes For 5606 Applications
6D SAE D—Rear Mount—Short Shft.
6C SAE C—Rear Mount—Short Shft.
6B SAE B—Rear Mount—Short Shft.
6BH SAE B—Rear Mount—2.10/2.35 Long Shft.
6AH SAE A Flange—Rear Mount +.750 Shaft - 1.40/1.80 Long
6T Thru-Shaft & Cover—(No Adapter)

Control Options

M (Std.) Remote Comp. (Internal Sensing)
ME Remote Comp. (External Sensing)
A Press. & Flow Comp. (Load Sensing)
S Servo Vol. & Press. (Internal Sensing)
SE Servo Vol. & Press. (External Sensing)
S1 Servo Vol. & Press. (Integral PPC)
PI Servo Pressure (Integral PPC)
H Horsepower (Torque) Control

* S and SE options include remote compensator and feedback assembly.
Requires amplifier board, special sequence valve, proportional pressure controller and connectors for operation.

Accessories for S & SE Options

PPC Valve (2500 PSI/172 Bar Max.) 694556
Amp. Single Pump AP11
Amp. Double Pump AP211
Closed Loop Feedback Card AF10
Sequence Valve (40 GPM/151.6 LPM Max.) SX6PM8
Sequence Valve (90 GPM/341.1 LPM Max.) SX10PM8
Sequence Valve (160 GPM/608 LPM Max.) SX16PM8
PPC Connector Assembly 800771
Feedback Connector Assy’ 800772
PSI Drive Card 801159
* PPC Valve (3000 PSI/207 Bar) 801186
PPC Valve (5000 PSI/345 Bar) 801187
Current to Voltage Conv. Card 801221

* Should only be used with 801179 PSI Drive Card.

Hydraulic Pump/Motor Division
Otsego, MI 49078
Variable Volume Vane Pumps
Series PVV 125/142

Accessories

EHC
Electrohydraulic Cable

Length
3 6 9 12 15

Cable Type
2 Wire 4 Gauge
4 Wire 24 Gauge

NOTE:
1. Standard Pump Feedback to Amplifier Connector — EHC'4YB
2. Standard PPC Valve to Amplifier Connector — EHC'AB

Flange Kit
Kit Includes Flange Bolts And O-Ring. These Are 4-Bolt SAE Style Flanges

54F
Size
32 2" 40 2-1/2"

Ports
1 NPTF
4 Socket Weld

Seals
A Buna N

Design Series

Weight and Package Size

<table>
<thead>
<tr>
<th>Model</th>
<th>Weight in Pounds</th>
<th>Length From Mounting Face in Inches (CM)</th>
<th>Height in Inches (CM)</th>
<th>Width in Inches (CM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVV 125</td>
<td>167</td>
<td>9.57 (24.31)</td>
<td>16.00 (40.64)</td>
<td>15.30 (38.86)</td>
</tr>
<tr>
<td>PVV 142</td>
<td>167</td>
<td>9.57 (24.31)</td>
<td>16.00 (40.64)</td>
<td>15.30 (38.86)</td>
</tr>
</tbody>
</table>

For additional information – call your local Parker Fluidpower Motion & Control Distributor.
**Installation Information**

**Fluid Recommendations**
Premium quality hydraulic oil with a viscosity range (@ 100°F/(37.8°C)) of 150-250 SSU (32-54 cst.) for pressures up to 1500 PSI (103 Bar) and 200-300 SSU (43-65 cst.) for higher pressures. Normal operating viscosity range between 80-500 (16-110 cst.). Maximum start-up viscosity is 2000 SSU (440 cst.).

**NOTE:** Inlet or reservoir fluid temperature must be maintained between 40°F (4.4°C) and 160°F (71°C). Recommended operating temperature is 100-110°F (37.8-43°C). 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). Due to the nature of variable displacement pumps, variations in pump inlet conditions, fluid acceleration losses, system aeration, and duty cycle must be carefully considered before specifying suction line filtration. Contact your Parker representative for assistance.

**Start-Up**
The PVV 125 and 142 have an automatic air bleed which bleeds air out of the case drain. On any start-up where the pump suction line and/or cavity is empty of oil, the circuit should be open to permit priming. Where this is impractical, the pump should be unloaded by backing off the compensator or venting the signal line if a remote compensator is installed.

**Inlet Conditions**
Not to exceed 7 in. Hg. at 1200 RPM or 5 in. Hg. at 1800 RPM. Air leak in suction line will cause cavitation and noise in pump. Suction lines should be routed to avoid “high points” which can trap air.

**Shaft Rotation And Line Up**
Pump and motor shaft alignment must be within .007 inches total indicator reading. Please follow coupling manufacturer's recommended installation instructions to prevent end thrust on pump shaft. Turn pump by hand 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**
Mounting position is not restricted. SAE D two bolt flange mounting for PVV 125 and 142. Drain port should be a separate line unrestricted to reservoir. This drain line should extend below reservoir oil level as far from the intake line as possible. The case drain line must not exceed 10 PSI (.7 Bar) back pressure. Suggested maximum line length is 10 feet. Minimum line size is 5/8" diameter for PVV 125 and 142.

**Thru-Shaft**
Pump rear covers are fitted with adapters to fit specific SAE pump flanges. (See ordering information for availability.) Horsepower which can be transmitted through the pump is as follows:

- **PVV 125/142** 100 HP

These ratings are for electric motor drive at 1800 RPM. Rating at 1200 RPM are 66% of above. Contact factory for other operating conditions.

**Special Installations**
Consult your Parker representative for any application requiring the following:

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

**Case Pressure**
Not to exceed 10 PSI (.7 Bar).
Installation Information

Variable Volume Vane Pumps
Series PVV

Standard Pump Assembly

- COMP. ADJUSTMENT—GAIN APPROX. 910 PSI (63 BAR) PER TURN
- INSTALL WILOCTITE ON O.D.
- 200 FT-LB. TORQUE AT TEST
- 25 FT-LB. TORQUE 4 PLACES
- VOLUME STOP ADJ. OPTION 2
- STAMP W/MODEL & DATE CODE
- INSTALL WILOCTITE
- MOUNT KEY ON ROTOR SHAFT AFTER ASSEMBLED INTO FRONT HOUSING
- NOTE: HALF VANES TRAIL FULL VANES
- PLATED VANES UNPLATED VANES — VARIATION 3
- 45 FT-LB. TORQUE 4 PLACES
- THRU-SHAFT ROTOR

NOTES:
1. USE LEFT HAND (CCW) PORT PLATE
2. USE LEFT HAND (CCW) THRUST PLATE
3. FULL VANES LEAD IN DIRECTION OF ROTATION
4. SERVO & BIAS PISTON ASSEMBLY INSTALLED TO OPPOSING SIDE
5. INSTALL COMP. SEAL PLATE W/DESIRED ROTATION UP. SEE SHEET 2
6. LIGHTLY STONE SURFACE FREE OF BURRS.

For additional information — call your local Parker Fluidpower Motion & Control Distributor.
Variable Volume Vane Pumps
Series PVV

JACK SCREW—2 REQD.
FOR DISASSEMBLY
USE ONLY.

300 FT.-LB. TORQUE
4 PLACES

THRU-SHAFT
OPTION 8

Standard Remote Compensator Assembly

Horsepower Control Option

FORM O-RINGS TO INSIDE OF
COMPENSATOR SEAL PLATE

INSTALL SEAL PLATE WITH
DESIRED ROTATION STAMPING UP.

"M", "S", "SI", "PI" & "IH" OPTIONS—ORIFICE INSTALLED
"ME", "SE" & "A" OPTIONS—SET SCREW INSTALLED
(ITEM INSTALLED INTO SPOOL W/LOCTITE @ 10 IN.-LB. TORQUE)

Hydraulic Pump/Motor Division
Otsego, MI 49078
Variable Volume Vane Pumps
Series PVV

Installation Information

Servo Volume Assembly
"S" & "SE" Option

NOTE: ASSEMBLY FOR L.H. (CCW) PUMP SHOWN HERE — FOR R.H. (CW) PUMP, INSTALL TO OPPOSITE SIDE.

45 FT-LB. TORQUE 4 PLACES

LOosen JAM NUT & ROTATE ENTIRE ASSEMBLY TO SET NULL POSITION

4 PLACES

LVDT ASSEMBLY

ITEMS 3 AND 4 LOCITED TO PROPER DIMENSIONS AT FACTORY.

Thru-Shaft (Option 6) Assembly

VERTICAL SECTION ON C.L. OF ASSEMBLED UNIT

△DIMENSION FROM MOUNTING FACE OF REAR PUMP (SEE CHART)

Adapter Size △Dimension
D 4.06 (103.12)
C 4.24 (107.70)
B 3.02 (76.71)
A 2.44 (61.96)

 INSTALL SET SCREW ON KEY AT ASSEMBLY

WHEN IDLER IS MOUNTED TO SPLINE SHAFT THERE IS TO BE AT LEAST .007" PLAY (RADIAL) BETWEEN PARTS.

For additional information – call your local Parker Fluidpower Motion & Control Distributor.
Variable Volume Vane Pumps
Series PVV

Installation Information

Horsepower Limiter Option

HORSEPOWER CONTROL ASSEMBLY
"H" OPTION

NOTE: ASSEMBLY FOR L.H. (CCW)
PUMP SHOWN HERE —
FOR R.H. (CW) PUMP, H.P. ASSY.
INSTALLED TO OPPOSITE SIDE
AND ROTATED 180°