



# Technical Bulletin

## PVG PUMPS

### Application Guide Lines

**ENGINEERING**

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The following information should be considered when applying Oilgear PVG Pumps. These guidelines are to be used to help design systems for continuous duty. Please consult the Oilgear Technical Sales Department when application and/or system requirement vary (even) slightly from the following.

SPECIFICATIONS (Also See "Additional Notes")	PVG 048	PVG 065	PVG 075	PVG 100	PVG 130
<b>DRIVE</b>					
Maximum rpm					
Flooded Inlet (suction)	2700	2700	2700	2400	2200
Supercharged Inlet	2700	2700	2700	2400	2400
Minimum rpm					
Flooded Inlet (suction)	900	900	900	900	900
Supercharged Inlet	900	900	900	900	900
Torque to turn shaft (ft. lbs.)	9	9	9	24	24
<b>Inlet</b>					
Pressure (psia)					
1800 rpm	5.6	6.2	7.3	11.2	10.8
1500 rpm	5.3	5.6	6.9	10.3	9.2
1200 rpm	5.1	5.2	6.2	9.5	8.6
Volume (See "Additional Notes")					
<b>Output</b>					
Pressure (psi)					
Maximum					
Intermittent	5800	5800	4250	5800	4250
Continuous	5000	5000	3750	5000	3750
Minimum	100	100	100	100	100
Volume @ 1800 rpm, rated pressure, and unit set for full displacement (to exceed) minimum gpm	18.5	26.1	31.5	39	55.4
<b>Case</b> Case pressure/inlet differentials take priority and must be followed per curves in "CHARTS"					
Maximum Pressure psi					
w/Std. Shaft seal	25	25	25	25	25
w/High pressure Teflon seal	100	100	100	100	100
Minimum Drain Size (inch tube)	1	1	1	1	1
Average case slip (cipm) compensated at					
5000 psi	1000	1000	-	1200	-
3750 psi	-	-	1070	-	1400

Orientation See Oilgear Service Instructions Bulletin 947019 for horizontal mounting. See Oilgear Service Instruction Bulletin 90014 for vertical mounting.

*(See case/inlet pressure chart on page 4)*

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SPECIFICATIONS (Also See "Additional Notes")	PVG 048	PVG 065	PVG 075	PVG 100	PVG 130
<b>Control</b>					
Minimum Pilot Pressure (psi)					
Pressure Controls	200	200	200	200	200
Volume Controls	-	-	-	500	500
Maximum Pilot Pressure (psi)					
Volume Control - VS <i>(1000 psi avail. upon request)</i>				600	600
Volume Control - VM				1000	1000
Control piston stroke (inches)	0.590	0.590	0.590	0.750	0.750
Control piston areas (inches <sup>2</sup> )					
Pressure Controls					
On Stroke	0.442	0.442	0.442	0.518	0.518
Off Stroke	2.405	2.405	2.405	3.142	3.142
Volume & Electronic					
Control on & off sizes are equal	N/A	N/A	N/A	3.142	3.142
Volume (in <sup>3</sup> )					
Pressure Controls					
On Stroke	1.42	1.42	1.42	2.36	2.36
Off Stroke	0.261	0.261	0.261	0.389	0.389
Volume & Electronic					
Volume on & off are equal	N/A	N/A	N/A	2.36	2.36
Swashblock angle (degrees) max.	21.5	21.5	21.5	21.5	21.5
Rate (msec.) at 1800 rpm & rated pressure					
Minimum to full stroke	40	40	40	40	40
Full to minimum stroke	50	50	50	50	50
<b>Fluid</b> Also see "Additional Notes" for filtration and contamination levels.					
Viscosity SSU					
Minimum	65	65	65	65	65
Maximum	2000	2000	2000	2000	2000
Operating Temperature (F°)*					
Inlet					
Maximum	190	190	190	190	190
Minimum	14	14	14	14	14
Minimum Starting	-40	-40	-40	-40	-40
Case range	150 - 200	150 - 200	150 - 200	150 - 200	150 - 200

*(See case/inlet pressure chart on page 4)*



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\* Minimum and maximum viscosities should be observed.

**ADDITIONAL NOTES**

**Inlet**

1. Free sucking circuits must be arranged to insure pump will “prime” when started.
2. When supercharging, (a) Maximum allowable supercharge pressure is 200 psi (b) 5 % of maximum is recommended for partial supercharge when using a suction check valve (c) 105 % volume required to fully supercharge units.

**Case**

1. **Drain** (a) Fill case with fluid before starting (b) Arrange case drain line to keep case full of fluid (c) Use a minimum of bends returning case drain line to reservoir below minimum fluid level.
2. **Orientation** (a) Pump orientation is not restricted. But, case drain must be arranged to **keep case full** of fluid at all times. *See Oilgear Service Instruction Bulletin 947019 for horizontal mounting. For vertically mounted units see Bulletin 90014, “Service Instructions, Installation of Vertically Mounted Axial Piston Units”.*

**Control**

1. Case bleed of 1 to 2 gpm is recommended for volume controlled pumps and/or pumps hydraulically remote controlled, especially if operated at neutral for long periods of time.

**Fluid**

1. **Filtration** (a) At least 1/3 of pump volume must be filtered with an element having a  $B_{10} = 15$ . (b) All fluid to a swing-plate servo valve control must be filtered with an element having a  $B_{10} = 15$  (c) All fluid to other servo valve controls must be through a  $B_{10} 75$  element.
2. **Contamination** level of ISO code 19/16 is maximum and a 0.1 % of water is maximum level.

**Start-up**

1. **Priming** (a) Valves may be necessary to bleed air from high pressure lines.
2. **Horizontal mounted units** (a) Top of case must be level with (or below) minimum reservoir fluid level or (b) Free sucking horizontal units mounted on top of reservoir must be partially supercharged or dump full pump delivery into reservoir at 10 psi (or less) for 15 seconds to purge (burp) the inlet air.
3. **Vertical mounted units** – See Bulletin 90014, “Service Instructions; Installation of Vertically Mounted

(See case/inlet pressure chart on page 4)

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#### CHARTS

MAXIMUM CASE/INLET DIFFERENTIAL PRESSURE. Case pressure can not exceed inlet pressure by values higher than those shown on this set of curves.

MAXIMUM CASE/INLET PRESSURE DIFFERENTIAL

