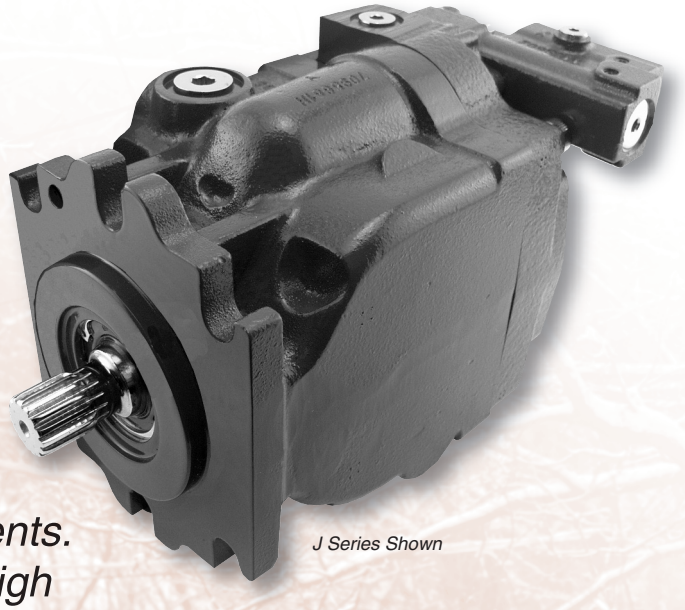
VSERIES

VARIABLE DISPLACEMENT PISTON PUMPS

The Muncie V Series pump family was designed to meet the rigorous needs of both existing and new equipment.

Muncie L, J & E Series Piston Pumps offer high performance in a compact, light weight package. A variety of controls are available to meet your application requirements. Advanced engineering methods, high quality materials and modern manufacturing help assure a durable product.



J Series Shown

AXIAL PISTON, OPEN LOOP PUMP
NATURALLY ASPIRATED INLET

FEATURES/ADVANTAGES

- **Large Pump Selection**
- **Sizes from 30-147cc** (1.83-8.97 c.i.)
- **Continuous Pressures to 4495 PSI** (310 Bar)
- **Intermittent Pressures to 5800 PSI** (400 Bar)
- **Viton Shaft Seal (Standard)**
- **Pump Controls for Pressure Compensated or Load Sense Control**
- **Compact Design & Lightweight Package**
- **High Volumetric Efficiency**
- **Low Heat Generation**
- **Low Noise Level**
- **High Self-Priming Speed**
- **Improved System Efficiency**
- **Controlled Response and Cycles**
- **Heavy Duty Tapered Roller Bearings**

TYPICAL APPLICATIONS INCLUDE

- **Snow and ice control**
- **Utility line trucks**
- **Product and transfer pumps**
- **Loaders and materials handling**
- **Refuse equipment**

MODEL NUMBER CONSTRUCTION

P V J 075 — 7 C F S L — PQ B

Pump — P

Series

Variable Displacement — V

Design Number — L — J — E

Model CC's (GPM/LPM) @ 1000 RPM

Design No. L	030 (7.9/30)	— 030
Design No. J	045 (11.9/45)	— 045
	060 (15.8/60)	— 060
	075 (19.8/75)	— 075
Design No. E	100 (26.4/100)	— 100
	130 (34.3/130)	— 130
	147 (38.8/147)	— 147

Shaft Type

Description	Model Available	
SAE "B" 7/8 - 13T Spline	J, L	— 2
SAE "C" 1-1/4 - 14T Spline	E, J	— 5
SAE "C" 1-1/4 Rd w/.250 Key	J	— 7
SAE "B" 7/8 Rd with Key	L	— 9
SAE "B-B" 1" - 15T Spline	J	— 17
SAE "C-C" 1-1/2" Rd w/Key	E	— 19

Seal Type

B — Buna N O-Rings with Viton Shaft Seal *(Standard)*

Pump Controls

P — Pressure Compensation

PQ — Pressure & Flow Compensation *(ie: Load Sense)*

Rotation

L — CCW

R — CW

Port Location

R — Rear Ports

S — Side Ports

Port Type

F — Split Flange (Inlet & Outlet) [Models E, J]

S — Str. Thd. ODT (Inlet & Outlet) [Model L]

Mounting Flange

Description	Model Available
C — SAE "C" 4-Bolt	E, J
H — SAE "B" 2-Bolt	J, L

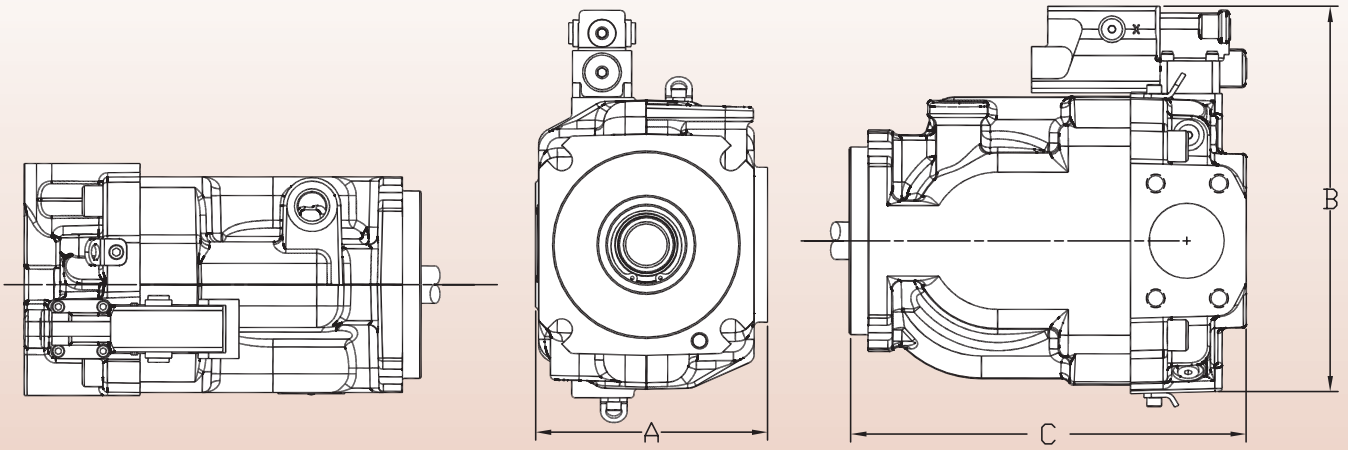
PUMP SPECIFICATIONS

MODEL NUMBER	DISPL CU IN (CC)	MIN RPM	MAX RPM**	MAX CONT. PSI (BAR)	MAX INT. PSI (BAR)	MAX CASE PSI (BAR)	APP. WT.* LBS (KG)
PVL-030	1.83 (30)	500	3200	3045 (210)	4350 (300)	7 (0.5)	53 (24)
PVJ-045	2.75 (45)	500	2800	4495 (310)	5800 (400)	7 (0.5)	58.8 (26.7)
PVJ-060	3.66 (60)	500	2600	4495 (310)	5800 (400)	7 (0.5)	58.8 (26.7)
PVJ-075	4.58 (75)	500	2400	3770 (260)	5075 (350)	7 (0.5)	58.8 (26.7)
PVE-100	6.10 (100)	500	2450	4495 (310)	5800 (400)	7 (0.5)	121 (54.9)
PVE-130	7.93 (130)	500	2200	4495 (310)	5800 (400)	7 (0.5)	121 (54.9)
PVE-147	8.97 (147)	500	2100	3770 (260)	5075 (350)	7 (0.5)	121 (54.9)

**Weights shown are for pumps with side porting. Rear ported pumps are approximately 7-10 lbs (3-5 Kg.) lighter. Maximum oil temperature is 180 deg. F (82 deg. C) continuous, measured at the case drain return oil. Pumps do not have an internal load sense drain. External required (usually in control valve).*

***RPM Shown for continuous speeds at 0 In. Hg. (1 Bar Absolute) inlet condition, maximum pump displacement.*

INSTALLATION DIMENSIONS



DIMENSIONS

MODEL NUMBER	WIDTH (A)	HEIGHT (B)	LENGTH (C)
PVL	7.48 (190)	8.55 (217)	8.74 (222)
PVJ	6.32 (160)	6.87 (174)	10.15 (258)
PVE	7.91 (201)	12.46 (316)	11.97 (304)

PORTING

MODEL NUMBER	INLET PORT	OUTLET PORT	CONTROL PORT SAE (S)	CASE DRAIN PORT – SAE (T)
PVL	-24 ODT	-16 ODT	-4 ODT	-10 ODT
PVJ	2.00" SF	1.00" SF	-4 ODT	-10 ODT
PVE	2.50" SF	1.25" SF*	-4 ODT	-10 ODT

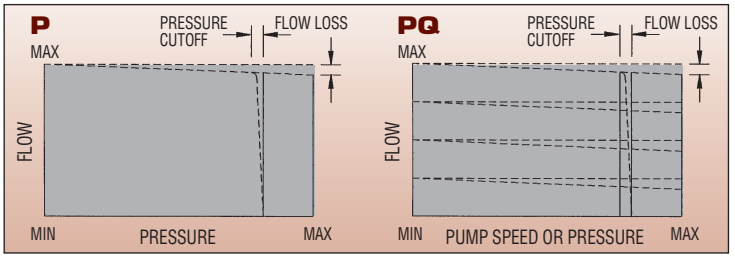
*Code 62 Split Flange

PUMP CONTROLS

P – PRESSURE COMPENSATION

Maintains constant pressure up to preset maximum as long as flow requirements do not exceed the pump capabilities.

- Destrokes pump at preset pressure.
- Short cutoff pressure differential.
- **J & E** - Externally adjustable from 1450-4495 PSI (100-310 Bar). Preset to 2610 PSI (180 Bar).
- **L** - Externally adjustable from 1450-3045 PSI (100-210 Bar). Preset to 2610 PSI (180 Bar).
- Use with open or closed center valves.
- Pump flow shown is at full stroke at pressures below preset.



PQ – LOAD SENSE

Pressure compensation plus flow compensation at very low standby control pressure for less horsepower draw.

- Destrokes pump to low standby with no flow requirements.
- Flow is produced on demand when the directional valve or orifice is opened.
- Pump stroke adjusts to maintain flow and pressure requirements of the function(s) up to flow capabilities of the pump.
- Flow controlled by known orifice size.
- Control pressure ext. adjustable from 145-580 PSI (10-40 Bar). 290 PSI (20 Bar) preset.
- Pump destrokes at preset compensator setting with flow demand.
- Multiple function operations work best with compatible load sense valves.

SYSTEM APPLICATION INFORMATION

OIL RECOMMENDATIONS

Muncie does not promote specific manufacturer's brands of oil. Specifications below are guidelines and the oil manufacturer should be consulted for your application needs.

Maximum viscosity at startup:	4700 SUS
Minimum viscosity:	47 SUS
Recommended viscosity range for optimal performance:	58-500 SUS (75-1000 typ.)

Due to the poor lubricating properties of automatic transmission fluid (ATF), bio-degradeable oils and fire resistant (FR type) oils, these fluids are not approved for use at this time.

FILTRATION/CONTAMINATION CONTROL

Because the design and operation of a piston pump is considerably different than that of a normal gear pump, filtration and contamination control must be drastically improved for optimal product life and performance. Disregarding this portion of the system can result in catastrophic pump failure or inadequate system performance. We recommend that fluid contamination levels be equal to or better than ISO 4406-1699 class 22/18/13. Most new oils will need to be filtered to meet this requirement.

INLET DESIGN

Due to the nature of design and operation of a piston pump, care must be taken to prevent operation at high vacuum conditions. The piston pump is more susceptible to damage and premature wear than a typical gear pump due to port design, tighter tolerances, and numerous contact surfaces. The proper size inlet line must be used and line velocity should not exceed 4 feet per second. Pressurizing the reservoir to approximately 3-5 PSI (.35 Bar) can help decrease the chances of high vacuum conditions and cavitation damage in most cases. Maximum 30 In. (76 CM) vertical lift.

SHAFT LOADING

AXIAL AND RADIAL LOADING IS NOT RECOMMENDED AND SHOULD BE AVOIDED. DO NOT USE WITH PULLEYS AND DRIVE BELTS WITHOUT OTHER SUPPORT. A typical drive shaft assembly should provide adequate slip to prevent premature driveline problems.

PUMP CASE DRAIN

Maximum case pressure is limited to 7 PSI (0.5 Bar) to prevent shaft seal damage and sluggish response. Never plug or block the case drain. Doing so will result in shaft seal failure and/or possible case damage.

MOUNTING CONSIDERATIONS

Vertical mounting with the input shaft pointing up could cause the front bearing to run dry and should be avoided. Leave room to access the case drain port so pump case can be filled prior to start up. When direct mounting to a PTO, external support of the pump is recommended. Check with the PTO manufacturer on this limitation.

STARTUP RECOMMENDATIONS

Before running the newly installed pump, fill the case with clean fluid. Run the pump for a few minutes at no load to bleed off any entrained air and to fully lubricate all parts.

SYSTEM PROTECTION

To protect the hydraulic system from pressure spikes a high quality in line relief valve must be used (typically installed in the directional valve) and set higher than the pump's pressure compensator.

LOAD SENSE CONTROL

The PV Series pump does not have an internal drain to bleed off the load sense signal. An external drain is required and is normally supplied in the directional valve (depending on the manufacturer).

Muncie® Power Products

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