



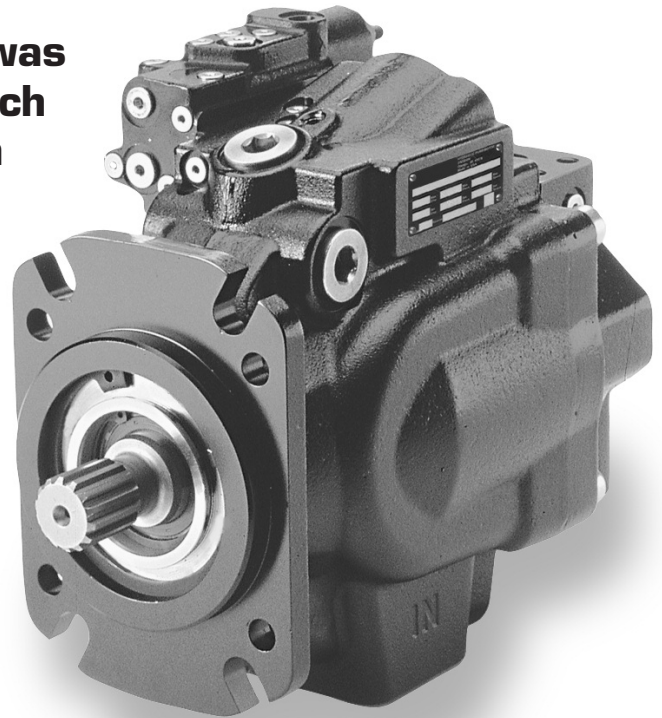
V SERIES

VARIABLE DISPLACEMENT PISTON PUMPS

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

Muncie V Series provides opportunities for both designer and installer with a compact high power design capable of continuous duty.

The double acting servo design improves pump life by reducing the forces on the cradle bearings. Forced pressure lube design at all key wear points assures long life and operation. A variety of pump controls are available to meet all your application needs.



**AXIAL PISTON, OPEN LOOP PUMP
NATURALLY ASPIRATED INLET**

FEATURES/ADVANTAGES

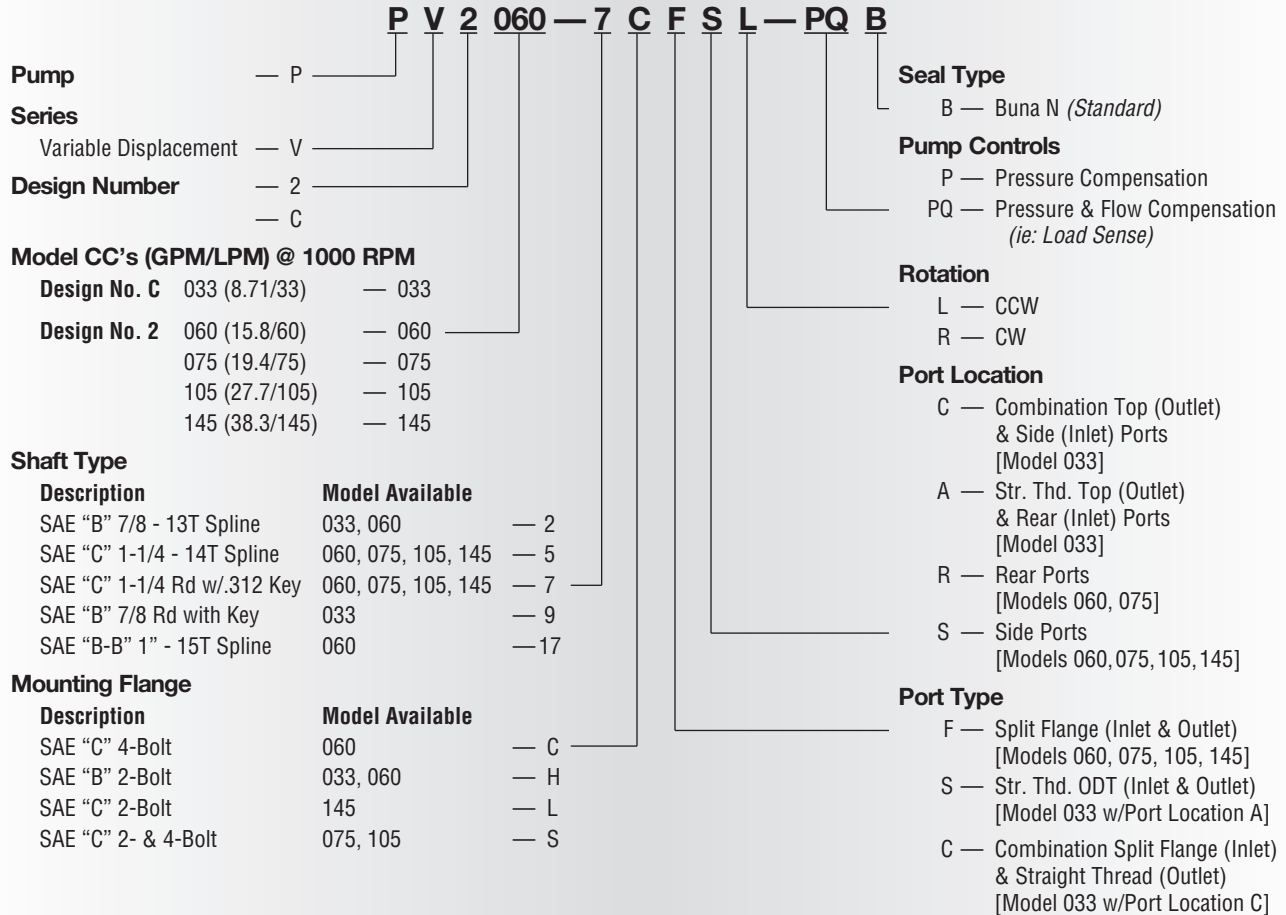
- Large Pump Selection:
Five Sizes from 33-145cc (2.00-8.85c.i.)
- Continuous Pressures to 4600 PSI (320 Bar)**; Intermittent Pressures to 5200 PSI (370 Bar)**
- Adjustable Maximum Displacement**
- Buna N (Standard) or Viton (Optional) Seals
- Pump Controls for Pressure Compensated, or Load Sense Control
- High volumetric Efficiency, Low Heat Generation
- Low Noise Level
- High Self-Priming Speed
- Improved System Efficiency
- Controlled Response and Cycles

*** Design No. 2 Only. C Design Limited to 3000 PSI (207 Bar) / 3300 PSI (228 Bar)*

PRODUCT APPLICATIONS

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

MODEL NUMBER CONSTRUCTION



PUMP SPECIFICATIONS

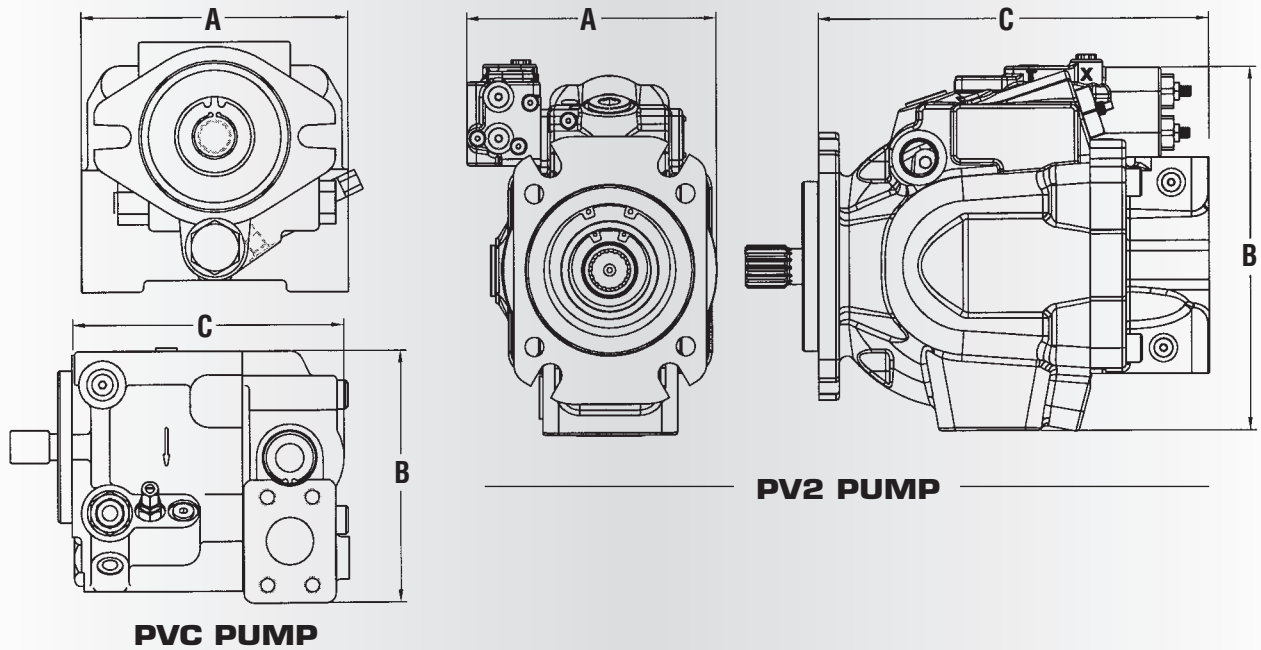
MODEL NUMBER	DISPL CU IN (CC)	MIN RPM	MAX RPM @ 14.5 PSIA (1 BAR)	MAX CONT. PSI (BAR)	MAX INT. PSI (BAR)	MAX CASE PSI (BAR)	APP. WT. LBS (KG)
PVC-033	2.00 (33)	600	3000	3000 (207)	3300 (228)	15 (1)	33 (15)
PV2-060	3.66 (60)	600	2800	4600 (320)	5200 (370)	15 (1)	81 (37)
PV2-075	4.57 (75)	600	2500	4600 (320)	5200 (370)	15 (1)	97 (44)
PV2-105	6.41 (105)	600	2300	4600 (320)	5200 (370)	15 (1)	136 (62)
PV2-145	8.85 (145)	600	2200	4600 (320)	5200 (370)	15 (1)	178 (81)

Note: Displacement shown is with swashplate at the maximum angle (15 deg.). Displacement can be reduced by using the "Maximum stop adjustment" which, when adjusted will limit swashplate angle and subsequent displacement (Series 2 only).

Pumps do not have an internal load sense signal drain. External drain required (usually in control valve).



INSTALLATION DIMENSIONS



DIMENSIONS

MODEL NUMBER	WIDTH (A)	HEIGHT (B)	LENGTH (C)
PVC-033	7.7 (196)	6.7 (169)	7.3 (186)
PV2-060	6.6 (168)	10.4 (264)	10.1 (258)
PV2-075	7.4 (189)	11.5 (292)	10.9 (277)
PV2-105	8.3 (212)	12.7 (323)	13.1 (332)
PV2-145	8.9 (225)	12.9 (329)	13.7 (349)

PORTING

MODEL NUMBER	INLET PORT	OUTLET PORT*	CONTROL PORT SAE (S)*	CASE DRAIN PORT – SAE (T)
PVC-033	1.25	0.75	-4 O-Ring (7/16-20)	-8 O-Ring (3/4-16)
PV2-060	2.00	1.00	-4 O-Ring (7/16-20)	-10 O-Ring (7/8-14)
PV2-075	2.00	1.00	-4 O-Ring (7/16-20)	-12 O-Ring (11/16-12)
PV2-105	2.50	1.25	-4 O-Ring (7/16-20)	-12 O-Ring (11/16-12)
PV2-145	2.50	1.25	-4 O-Ring (7/16-20)	-12 O-Ring (11/16-12)

* All Split Flange Outlet Ports are SAE Code 62: 5000 PSI (350 Bar) Rated Except for C Design which are SAE O-Ring Ports on the Outlet, and Split Flange or O-Ring Ports on the Inlet. Inlet Ports are SAE Code 61.

PUMP CONTROLS

P – PRESSURE COMPENSATION

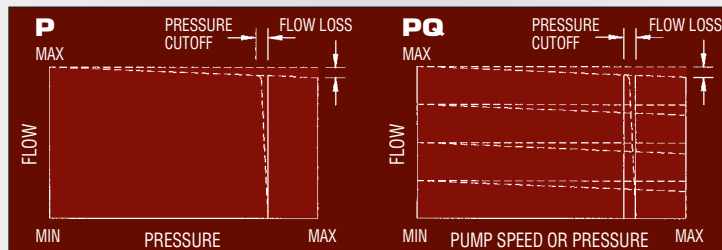
Maintains constant pressure up to preset maximum as long as flow requirements do not exceed the pump capabilities.

- Destrokes pump to preset pressure.
- Short cutoff pressure differential.
- 2610 PSI (180 Bar) preset.
Design C adjustable from 300-3000 PSI (20-207 Bar).
Design 2 adjustable from 1600-4600 PSI (110-320 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 standby control pressure for less horsepower draw.

- Destrokes pump to 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 req. of the function(s) up to flow capabilities of the pump.
- Control pressure ext. adj. from 145-500 PSI (10-35 Bar). 290 PSI (20 Bar) preset. Design No. 2 only.



- Flow controlled by known orifice size.
- 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: 7500 SUS
Minimum viscosity: 50 SUS
Recommended viscosity range
for optimum performance: 75-170 SUS (75-1000 typ.)

Due to the poor lubricating properties of automatic transmission fluid (ATF), biodegradable 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 optimum 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-18/14. 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 15 PSI (1 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. Typically set at 250-400 PSI (17-28 Bar).

LOAD SENSE CONTROL

The V 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).



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