## REPLACING AN EXISTING PUMP

1.   Identify Series, use chart below if necessary.

SERIES	STUDS No. & Diameter	HOUSING HEIGHT	HOUSING WIDTH = Gear Width + Thrust Plates:	THREADED BEARING RETAINER
P1200	10 - 1/2"	7"	1/2"	NO
P1500	4 - 1/2"	5.5"	3/4"	NO
P2100	4 - 9/16"	5"	3/4"	NO
P2500	4 - 5/8"	6.25"	3/4"	YES
P3700	8 - 1/2"	7.3125"	1"	YES
P3000 / 3100	4 - 5/8"	5.5"	3/4"	NO
P5000 / 5100	4 - 5/8"	6.25"	3/4"	NO
P7500 / 7600	8 - 5/8"	8"	1"	NO
P124 / 424	4 - 1/2"	4.75	.400"	NO
P197	4 - 5/8"	5.66"	1/2"	NO
P257	4 - 5/8"	5.68"	1/2"	NO
P360 / 460	4 - 5/8"	7.05"	1/2"	NO
M360	4 - 3/4"	7.05"	1/2"	NO

2.   Gear Width: Housing Width minus Thrust Plates (see chart above)

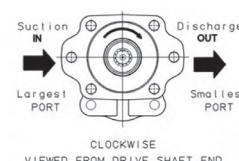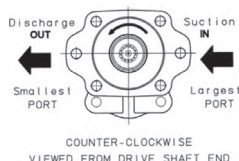3.   Shaft Diameter and Configuration (# splines or key size if round)

4.   Mounting Flange: Bolt Circle Diameter _____
         Pilot Diamerter: _____   Number Studs _____
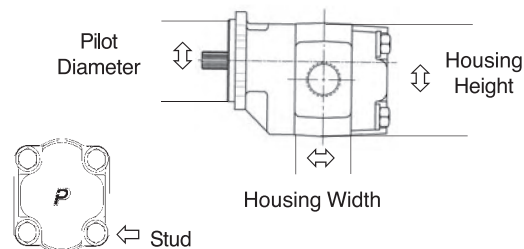
5.   Porting: Inlet   NPT _____   ODT _____   Split Flange _____   Location _____
                    Outlet NPT _____   ODT _____   Split Flange _____   Location _____

6.   Rotation: Looking at the shaft end, belly down, inlet on the left = Clockwise
                Looking at the shaft end, belly down, inlet on the right = Counterclockwise
                Bi-rotation Pumps usually have equal size ports but must still be plumbed correctly.
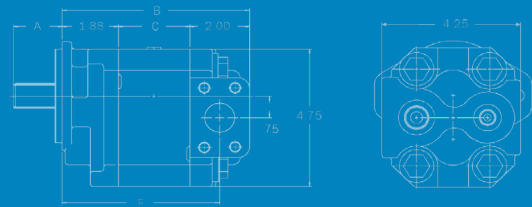
Helpful Formulas

• PUMP INPUT HORSEPOWER	HP = GPM x PSI / 1714 / E	E = Efficiency
• PUMP INPUT TORQUE	T = GPM x PSI x 3.06 / RPM / E	D = Displacement
• PUMP OUTPUT FLOW RATE	GPM = D x RPM x E /231	
• DISPLACEMENT OF PUMP	D = GPM x 231 / RPM / E	
• PUMP INPUT SPEED	RPM = GPM x 231 / D / E	
• GPM USING PTO	GPM = Eng RPM x % PTO x D x E / 231	

PERMCO

How to Order PTO's

1. Transmissions make and model number. The bill of material number and /or the serial number is also helpful on some transmissions. In some cases it may be necessary to know the make, model number, and year of the vehicle.

2. Go to the appropriate application page.

3. Which PTO Opening? (As viewed from the drivers seat) Right, left, bottom, top. Not all locations available on all transmissions. Make sure that the PTO opening you choose is free of interference.

4. Type of equipment to be driven. This will determine the type of PTO you choose. For some applications you will need to determine the torque required to drive the equipment.

5. Desired operating speed of driven equipment. Related in % of engine speed.

6. Rotation of driven equipment. Related as engine or opposite engine rotation. Rotation of driven equipment is normally determined as viewed from the input shaft. Clockwise rotation of the driven equipment., if determined in this way, equals engine rotation; counterclockwise equals opposite engine rotation.

7. Type of drive; direct mount to PTO or remote mount driven with drive shaft.

8. Type of shift; cable, lever, manual air, electric/air, electric, integral clutch with air or hydraulic shift. Not all shift types available on all PTO's.

9. Determine duty cycle; intermittent or continuous. Continuous duty is defined as any operation requiring more than 5 minutes in any 15 minute period. If the application is continuous duty multiply the torque rating of the PTO by 0.7 or divide the torque required by the application by 0.7
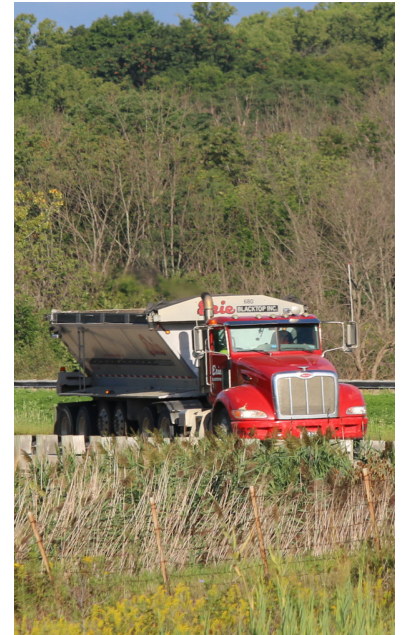
Permco is a leading manufacturer of high-pressure hydraulic gear/vane pumps and motors, flow dividers, intensifiers, and accessories. Available in a wide variety of sizes and configurations to suit your application needs.

Helpful Formulas

- Mechanical Horsepower
- Torque
- RPM
- PTO Output Speed
- Engine Input RPM
- PTO %

$HP = T \times RPM / 5252$

$T = HP \times 5252 / RPM$

$RPM = HP \times 5252 / Torque$

$PTO\ RPM = ENG\ RPM \times \%\ PTO$

$Required\ ENG\ RPM = Target\ PTO\ RPM / PTO\ \%$

$PTO = Required\ PTO\ RPM / Target\ ENG\ RPM$

The above information is supplied as a helpful reference only and is not designed to substitute for sound engineering and experience.

Our Online Support is available 24/7/365 for your needs!

Email: support@permco.com

Call: (800) 626.2801

PERMCO

www.permco.com

NFPA
Solutions through motion technology

NTEA
NATIONAL TRUCK EQUIPMENT ASSOCIATION
Member