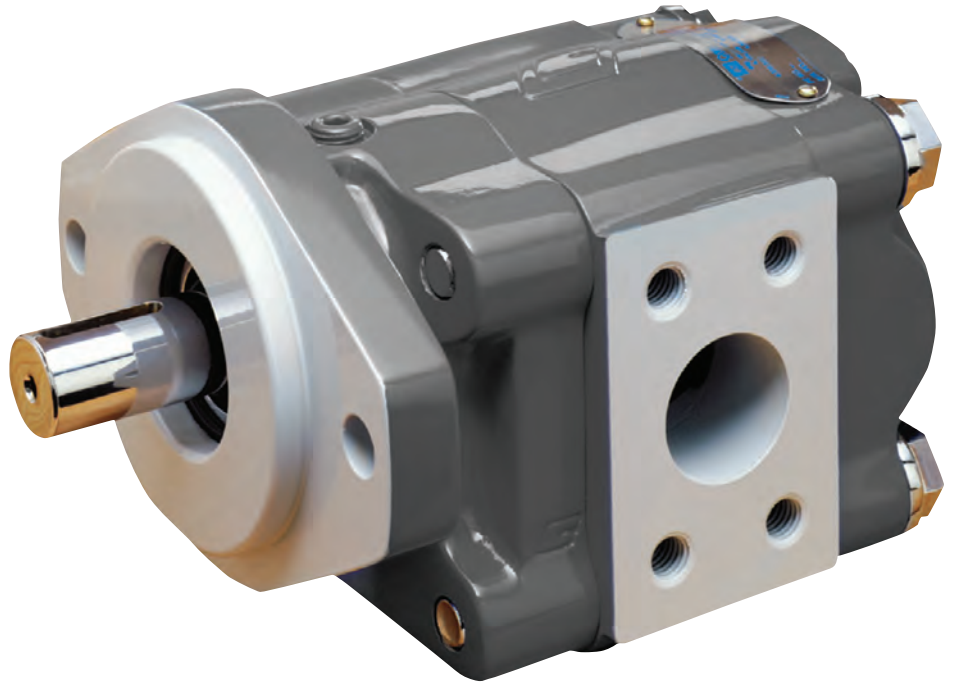




aerospace  
climate control  
electromechanical  
filtration  
fluid & gas handling  
**hydraulics**  
pneumatics  
process control  
sealing & shielding



**PGP030/031™ Series**  
**PGP050/051™ Series**  
**PGP075/076™ Series**  
Single and Multiple Pumps and Motors



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- Refuse/dump truck
- Material handling
- Forestry
- Agriculture
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**Pump/Valve Products**

**PGP030/031**

- Flows to 41 GPM
- Pressures to 3000 psi
- Speeds to 2400 rpm
- Priority valves
- Two-speed valves
- Piggybacks
- Winch motors
- Flow dividers

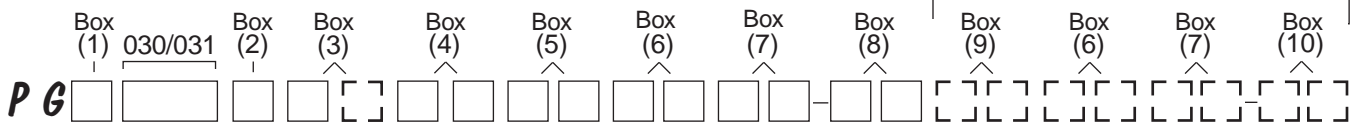
**PGP050/051**

- Flows to 66 GPM
- Pressures to 3000 psi
- Speeds to 2400 rpm
- Priority valves
- Two-speed valves
- Unloader valve
- Winch motors
- Flow dividers
- Piggybacks

**PGP075/076**

- Flows to 128 GPM
- Pressures to 3000 psi
- Speeds to 2400 rpm
- Two-speed valves
- Piggybacks
- Winch motors
- Flow dividers

Multiple Units: Repeat if Necessary



**Box 1 Pump/Motor**

|          |       |
|----------|-------|
| <b>P</b> | Pump  |
| <b>M</b> | Motor |

**Box 2 Unit**

|          |   |
|----------|---|
| <b>A</b> | Single Unit   |
| <b>B</b> | Tandem Unit   |
| <b>C</b> | Single or Tandem w. two-piece shaft (O.B. bearing required) |

**Box 3 Shaft End Cover**

|           |   |
|-----------|---|
| <b>1</b>  | Pump, cw w/o O.B. bearing                               |
| <b>2</b>  | Pump, ccw w/o O.B. bearing                              |
| <b>3</b>  | Pump, bi-rotational w/o O.B. bearing (030 series only)  |
| <b>4</b>  | Pump, cw with O.B. bearing                              |
| <b>5</b>  | Pump, ccw with O.B. bearing                             |
| <b>6</b>  | Pump, bi-rotational with O.B. bearing (030 series only) |
| <b>8</b>  | Motor, bi-rot. with O.B. bearing + 1/4" NPT drain       |
| <b>9</b>  | Motor, bi-rot. w/o O.B. bearing + 1/4" NPT drain        |
| <b>18</b> | Motor, bi-rot. with O.B. bearing + 1/4" BSPP drain      |
| <b>19</b> | Motor, bi-rot. w/o O.B. bearing + 1/4" BSPP drain       |

**Box 4 Shaft End Cover (type 1 unless noted)**

|                                    |  |
|------------------------------------|--|
| <b>00</b>                          | Pad mount  |
| <b>05</b>                          | 6 bolt flange - 3.25" dia. bolt circle: Pilot Dia. 2 5/8"            |
| <b>42</b>                          | SAE 4 bolt "B" ANSI 101-4: Pilot Dia. 4"                             |
| <b>78</b>                          | SAE 4 bolt "C" ANSI 127-4: Pilot Dia. 5"                             |
| <b>91</b>                          | 030-030, 031-031, & 050-030, 051-031<br>for piggyback: Pilot Dia. 4" |
| <b>92</b>                          | 075-030, 076-031 for piggyback: Pilot Dia. 5"                        |
| <b>94</b>                          | SAE 2 bolt "A" ANSI 82-2: Pilot Dia. 3 1/4"                          |
| <b>96*</b>                         | SAE 2 bolt "B" ANSI 101-2, <b>type 2:</b> Pilot Dia. 4"              |
| *(not available with O.B. bearing) |  |
| <b>97</b>                          | SAE 2 bolt "B" ANSI 101-2: Pilot Dia. 4"                             |

**Box 5 Port End Cover (Rear Ported)**

| Left   | Right | Single    | Tandem    | Extended Studs |
|--|-------|-----------|-----------|----------------|
| <b>Unported</b>  |       |           |           |                |
| -  | -     | <b>BE</b> | <b>BI</b> | <b>BY</b>      |
| <b>NPT Porting (030 series only)</b>                     |       |           |           |                |
| 3/4"   | -     | <b>KE</b> | <b>KI</b> | <b>KY</b>      |
| -  | 3/4"  | <b>LE</b> | <b>LI</b> | <b>LY</b>      |
| 3/4"   | 3/4"  | <b>ME</b> | <b>MI</b> | <b>MY</b>      |
| <b>NPT Porting (030 series only) - Modified Casting*</b> |       |           |           |                |
| 1"   | 1"    | <b>QU</b> | <b>QU</b> | -              |

**For All Units**  
To determine direction of shaft rotation, view the unit with the shaft pointing toward you, and the idler (driven) gear beneath the shaft. With clockwise rotation, flow will be left to right. The pump inlet port will be on the left, outlet on the right. The flow is in the opposite direction with counter-clockwise rotation. Inverting the pump will reverse the inlet and outlet ports but not the direction of rotation.

**Box 5 Port End Cover (Rear Ported) continued**

| Left                  | Right | Single    | Tandem    | Extended Studs |
|-----------------------|-------|-----------|-----------|----------------|
| <b>O.D.T. Porting</b> |       |           |           |                |
| 3/4"                  | -     | <b>CE</b> | <b>CI</b> | <b>CY</b>      |
| -                     | 3/4"  | <b>DE</b> | <b>DI</b> | <b>DY</b>      |
| 3/4"                  | 3/4"  | <b>FE</b> | <b>FI</b> | <b>FY</b>      |
| 1"                    | 3/4"  | <b>GE</b> | <b>GI</b> | <b>GY</b>      |
| 3/4"                  | 1"    | <b>HE</b> | <b>HI</b> | <b>HY</b>      |

**O.D. Tube Porting (30 series only)**

|    |    |           |           |           |
|----|----|-----------|-----------|-----------|
| 1" | 1" | <b>JE</b> | <b>JI</b> | <b>JY</b> |
|----|----|-----------|-----------|-----------|

**O.D. Tube Porting - Modified Casting\***

|        |        |           |           |           |
|--------|--------|-----------|-----------|-----------|
| 3/4"   | -      | <b>CA</b> | <b>CU</b> | <b>CO</b> |
| -      | 3/4"   | <b>DA</b> | <b>DU</b> | <b>DO</b> |
| 3/4"   | 3/4"   | <b>JA</b> | <b>JU</b> | <b>BO</b> |
| 1"     | 3/4"   | <b>KA</b> | <b>KU</b> | -         |
| 3/4"   | 1"     | <b>LA</b> | <b>LU</b> | -         |
| 1"     | -      | <b>MA</b> | <b>MU</b> | <b>YO</b> |
| -      | 1"     | <b>RA</b> | <b>SU</b> | <b>RO</b> |
| 1"     | 1"     | <b>ZA</b> | <b>ZU</b> | <b>ZO</b> |
| 1 1/4" | 1"     | <b>GU</b> | <b>GU</b> | -         |
| 1"     | 1 1/4" | <b>HU</b> | <b>HU</b> | -         |

**BSPP Porting**

|      |      |           |           |           |
|------|------|-----------|-----------|-----------|
| 3/4" | -    | <b>WE</b> | <b>WI</b> | <b>WY</b> |
| -    | 3/4" | <b>XE</b> | <b>XI</b> | <b>XY</b> |
| 3/4" | 3/4" | <b>ZE</b> | <b>ZI</b> | <b>ZY</b> |

**Metric Straight Thread**

|      |      |           |           |           |
|------|------|-----------|-----------|-----------|
| 3/4" | -    | <b>NE</b> | <b>NI</b> | <b>NY</b> |
| -    | 3/4" | <b>PE</b> | <b>PI</b> | <b>PY</b> |
| 3/4" | 3/4" | <b>QE</b> | <b>QI</b> | <b>QY</b> |
| 1"   | 3/4" | <b>RE</b> | <b>RI</b> | <b>RY</b> |
| 3/4" | 1"   | <b>SE</b> | <b>SI</b> | <b>SY</b> |

**Port End Cover (5) (Side Ported)**

| Left   | Right  | Single    | Tandem    | Extended Studs |
|--|--------|-----------|-----------|----------------|
| <b>O.D. Tube Porting - Modified Casting*</b> |        |           |           |                |
| 1 1/4"                                       | 1"     | <b>TU</b> | <b>TU</b> | -              |
| 1"   | 1 1/4" | <b>XU</b> | <b>XU</b> | -              |
| <b>CW    CCW    Double</b>                   |        |           |           |                |
| <b>Piggyback Port End - Pump Only</b>        |        |           |           |                |
| Type 030-030, 031-031                        |        |           |           |                |
| (double 030-030 only)                        |        |           |           |                |
| <b>KO    LO    MO</b>                        |        |           |           |                |

\* Modified PEC casting is for higher pressure/larger port applications.



| <b>Box 6 Gear Housing</b> |        |      |      |      |       |      |            |       |      |      |      |                        |    |    |
|---------------------------|--------|------|------|------|-------|------|------------|-------|------|------|------|------------------------|----|----|
| 030 Series                |        |      |      |      |       |      | 031 Series |       |      |      |      |                        |    |    |
| Housing Code              | 07     | 10   | 12   | 15   | 17    | 20   | 10         | 12    | 15   | 17   | 20   |                        |    |    |
| Displacement (C.I.R.)     | 1.48   | 1.97 | 2.46 | 2.96 | 3.45  | 3.94 | 1.97       | 2.46  | 2.96 | 3.45 | 3.94 |                        |    |    |
| Maximum (PSI)             | 2500   | 2500 | 2500 | 2500 | 2250  | 2250 | 3000       | 3000  | 3000 | 2500 | 2500 |                        |    |    |
| IN                        | OUT    | CW   | CCW  |      |       |      |            |       |      |      |      |                        |    |    |
| -                         | -      | AB   | AB   | X    | X     | X    | X          | X     | X    | X    | X    | <b>No Porting</b>      |    |    |
|                           |        |      |      |      |       |      |            |       |      |      |      |                        |    |    |
|                           |        |      |      |      |       |      |            |       |      |      |      | <b>NPT Porting</b>     |    |    |
| 1/2"                      | -      | IL   | IM   | X    | X     |      |            |       |      |      |      |                        |    |    |
| -                         | 1/2"   | IM   | IL   | X    | X     |      |            |       |      |      |      |                        |    |    |
| 1/2"                      | 1/2"   | IR   | IR   | X    |       |      |            |       |      |      |      |                        |    |    |
| 3/4"                      | -      | IC   | ID   |      | X     | X    | X          | X     | X    |      |      |                        |    |    |
| -                         | 3/4"   | ID   | IC   |      | X     | X    | X          | X     | X    |      |      |                        |    |    |
| 3/4"                      | 3/4"   | IF   | IF   |      | X     | X    | X          | X     | X    |      |      |                        |    |    |
| 1**                       | 3/4"   | IJ   | IG   |      | X*    | X    | X          | X     |      |      |      |                        |    |    |
| 1 1/4**                   | 3/4"   | IK   | IH   |      |       |      | X*         | X     |      |      |      |                        |    |    |
| 1**                       | -      | YC   | YD   |      | X*    | X    | X          | X     |      |      |      |                        |    |    |
| -                         | 1"     | YD   | YC   |      | X     | X    | X          |       |      |      |      |                        |    |    |
| 1"                        | 1"     | YF   | YF   |      | X     | X    | X          | X     |      |      |      |                        |    |    |
| 1 1/4**                   | 1"     | YJ   | YG   |      |       |      | X*         | X     | X    |      |      |                        |    |    |
| 1 1/4**                   | -      | IA   | IB   |      |       |      | X*         | X     | X    |      |      |                        |    |    |
| -                         | 1 1/4" | IB   | IA   |      |       |      |            | X     | X    |      |      |                        |    |    |
| 1 1/4"                    | 1 1/4" | YL   | YL   |      |       |      |            | X     | X    |      |      |                        |    |    |
| 1 1/2**                   | -      | YA   | YB   |      |       |      |            |       |      | X*   |      |                        |    |    |
| 1 1/2**                   | 1 1/4" | YP   | YM   |      |       |      |            |       |      |      | X*   |                        |    |    |
|                           |        |      |      |      |       |      |            |       |      |      |      | <b>OD Tube Porting</b> |    |    |
| 3/4**                     | -      | EC   | ED   |      | 2000  | X    | X          | X     |      | X*   | X    | X                      | X  |    |
| -                         | 3/4"   | ED   | EC   |      | 2000  | X    | X          | X     |      |      | X    | X                      | X  |    |
| 3/4"                      | 3/4"   | EF   | EF   |      | 2000  | X    | X          | X     | X    |      | X    | X                      | X  |    |
| 1**                       | 3/4"   | EJ   | EG   |      | 2000* | X*   | X          | X     | X    |      | X*   | X*                     |    |    |
| 1 1/4**                   | 3/4"   | EK   | EH   |      |       |      | X*         | X*    |      |      | X*   | X*                     |    |    |
| 1 1/2**                   | 3/4"   | IP   | IN   |      |       |      |            | X*    | X*   |      |      | X*                     |    |    |
| 7/8"                      | -      | EZ   | -    |      |       | X    |            |       |      |      |      |                        |    |    |
| -                         | 7/8"   | -    | EZ   |      |       | X    |            |       |      |      |      |                        |    |    |
| 1**                       | 7/8"   | EM   | EL   |      |       | X*   |            |       |      |      |      |                        |    |    |
| 1**                       | -      | AC   | AD   |      | X*    | 2000 | X          | X     | X    | X*   | X*   | 2500                   | X  | X  |
| -                         | 1"     | AD   | AC   |      |       | 2000 | X          | X     | X    |      |      | 2500                   | X  | X  |
| 1"                        | 1"     | AF   | AF   |      |       |      | X          | X     | X    |      |      | 2500                   | X  | X  |
| 1 1/4**                   | 1"     | AJ   | AG   |      |       |      | X*         | X*    | X    |      |      | 2500*                  | X* | X* |
| 1 1/2**                   | 1"     | AK   | AH   |      |       |      |            | X*    | X*   |      |      |                        | X* | X* |
| 1 1/4**                   | -      | AA   | AO   |      |       |      | X*         | 2000  |      |      |      | X*                     | X* |    |
| -                         | 1 1/4" | AO   | AA   |      |       |      |            | 2000  |      |      |      |                        |    |    |
| 1 1/4"                    | 1 1/4" | AL   | AL   |      |       |      |            | 2000  | X    |      |      |                        |    | X  |
| 1 1/2**                   | 1 1/4" | AP   | AM   |      |       |      |            | 2000* | X*   |      |      |                        |    | X* |
| 1 1/2**                   | -      | AE   | AU   |      |       |      |            |       | X*   | 2000 |      |                        |    | X* |
| -                         | 1 1/2" | AU   | AE   |      |       |      |            |       |      | 2000 |      |                        |    |    |

\* This porting is acceptable for low pressure inlet port only.

**NOTES**

1. Shaded cells are acceptable for motor codes.
2. NPT ports are not recommended for use at pressures in excess of 1500 PSI.
3. "X" Means both codes are available.
4. "2000" or "2500" indicates maximum pressure rating on port.



| <b>Box 6 Gear Housing <i>continued</i></b> |            |                   |            |      |      |      |      |                   |      |      |      |      |
|--|------------|-------------------|------------|------|------|------|------|-------------------|------|------|------|------|
|  |            | <b>030 Series</b> |            |      |      |      |      | <b>031 Series</b> |      |      |      |      |
| <b>Housing Code</b>                        |            | 07                | 10         | 12   | 15   | 17   | 20   | 10                | 12   | 15   | 17   | 20   |
| <b>Displacement (C.I.R.)</b>               |            | 1.48              | 1.97       | 2.46 | 2.96 | 3.45 | 3.94 | 1.97              | 2.46 | 2.96 | 3.45 | 3.94 |
| <b>Maximum (PSI)</b>                       |            | 2500              | 2500       | 2500 | 2500 | 2250 | 2250 | 3000              | 3000 | 3000 | 2500 | 2500 |
| <b>IN</b>                                  | <b>OUT</b> | <b>CW</b>         | <b>CCW</b> |      |      |      |      |                   |      |      |      |      |
| <b>Split Flange Porting</b>                |            |                   |            |      |      |      |      |                   |      |      |      |      |
| 3/4"                                       | -          | UC                | UD         | X    | X    | X    | X    | X                 | X    | X    | X    | X    |
| -  | 3/4"       | UD                | UC         | X    | X    | X    | X    | X                 | X    | X    | X    | X    |
| 3/4"                                       | 3/4"       | UF                | UF         | X    | X    | X    | X    | X                 | X    | X    | X    | X    |
| 1"   | 3/4"       | UJ                | UG         | X    | X    | X    | X    | X                 | X    | X    | X    | X    |
| 1 1/4"                                     | 3/4"       | UK                | UH         |      | X    | X    | X    | X                 | X    | X    | X    | X    |
| 1"   | -          | OC                | OD         |      | X    | X    | X    | X                 | X    | X    | X    | X    |
| -  | 1"         | OD                | OC         |      | X    | X    | X    | X                 | X    | X    | X    | X    |
| 1"   | 1"         | OF                | OF         | X    | X    | X    | X    | X                 | X    | X    | X    | X    |
| 1 1/4"                                     | 1"         | OJ                | OG         |      | X*   | X    | X    | X                 | X    | X    | X    | X    |
| 1 1/2"                                     | 1"         | OK                | OH         |      |      |      | X*   | X                 | X    | X    | X    | X    |
| 1 1/4"                                     | -          | OA                | OB         |      | 2000 | X    | X    | X                 | X    | X    | X    | X    |
| -  | 1 1/4"     | OB                | OA         |      | 2000 | X    | X    | X                 | X    | X    | X    | X    |
| 1 1/4"                                     | 1 1/4"     | OL                | OL         |      |      | X    | X    | X                 | X    | X    | X    | X    |
| 1 1/2"                                     | 1 1/4"     | OP                | OM         |      |      |      | X*   | X                 | X    | X    | X    | X    |
| 1 1/2"                                     | -          | OE                | OU         |      |      | 2000 | X    | X                 | X    | X    | X    | X    |
| -  | 1 1/2"     | OU                | OE         |      |      | 2000 | X    | X                 | X    | X    | X    | X    |
| <b>BSP Porting</b>                         |            |                   |            |      |      |      |      |                   |      |      |      |      |
| 3/4"                                       | -          | YN                | YQ         | X*   | X    | X    | X    | X                 | X    | X    | X    | X    |
| -  | 3/4"       | YQ                | YN         |      | X    | X    | X    | X                 | X    | X    | X    | X    |
| 3/4"                                       | 3/4"       | YS                | YS         |      | X    | X    | X    | X                 | X    | X    | X    | X    |
| 1"   | 3/4"       | YV                | YT         |      | X*   | X*   | X    | X                 | X    | X    | X    | X    |
| 1 1/4"                                     | 3/4"       | YW                | YU         |      |      |      | X*   | X*                | X    | X    | X    | X    |
| 1"   | -          | SL                | RQ         |      | 2000 | X    | X    | X                 | X    | X    | X    | X    |
| -  | 1"         | RQ                | SL         |      | 2000 | X    | X    | X                 | X    | X    | X    | X    |
| 1"   | 1"         | MP                | MP         |      | 2000 | X    | X    | X                 | X    | X    | X    | X    |
| 1 1/4"                                     | 1"         | IX                | VY         |      |      | X*   | X*   | X*                | X    | X    | X    | X    |
| 1 1/4"                                     | -          | NJ                | UI         |      |      | 2000 | X*   | X                 | X    | X    | X    | X    |
| -  | 1 1/4"     | UI                | NJ         |      |      | 2000 | X*   | X                 | X    | X    | X    | X    |
| 1 1/4"                                     | 1 1/4"     | PF                | PF         |      |      |      | 2000 | X                 | X    | X    | X    | X    |
| 1 1/2"                                     | 1"         | VI                | HW         |      |      |      |      |                   | X*   | X*   | X    | X    |
| <b>Metric Straight Thread Porting</b>      |            |                   |            |      |      |      |      |                   |      |      |      |      |
| 3/4"                                       | -          | EN                | TQ         |      | X    | X    | X    | X                 | X    | X    | X    | X    |
| -  | 3/4"       | TQ                | EN         |      | X    | X    | X    | X                 | X    | X    | X    | X    |
| 3/4"                                       | 3/4"       | ES                | ES         |      | X    | X    | X    | X                 | X    | X    | X    | X    |
| 1"   | 3/4"       | EV                | ET         |      | X*   | X*   | X    | X                 | X    | X    | X    | X    |
| 1 1/4"                                     | 3/4"       | EW                | EU         |      |      |      | X*   | X*                | X    | X    | X    | X    |
| 1"   | -          | NL                | ER         |      | X*   |      | X    | X                 | X    | X    | X    | X    |
| -  | 1"         | ER                | NL         |      |      |      | X    | X                 | X    | X    | X    | X    |
| 1"   | 1"         | CM                | CM         |      | 2000 | X    | X    | X                 | X    | X    | X    | X    |
| 1 1/4"                                     | 1"         | EX                | VE         |      |      | X*   | X*   | X*                | X    | X    | X    | X    |
| 1 1/2"                                     | 1"         | VA                | HA         |      |      | X*   | X*   | X*                | X    | X    | X    | X    |
| 1 1/4"                                     | 1 1/4"     | PA                | PA         |      |      | 2000 | X    | X                 | X    | X    | X    | X    |
| 1 1/2"                                     | 1 1/4"     | SA                | QA         |      |      |      | X*   | X*                | X    | X    | X    | X    |

\* This porting is acceptable for low pressure inlet port only.

**NOTES**

1. Shaded cells are acceptable for motor codes.
2. "X" Means both codes are available.
3. "2000" or "2500" indicates maximum pressure rating on port.





| <b>Box 6 Gear Housing <i>continued</i></b> |        |      |      |      |      |            |                                    |      |      |      |      |
|--|--------|------|------|------|------|------------|------------------------------------|------|------|------|------|
| 030 Series                                 |        |      |      |      |      | 031 Series |                                    |      |      |      |      |
| Housing Code                               | 07     | 10   | 12   | 15   | 17   | 20         | 10                                 | 12   | 15   | 17   | 20   |
| Displacement (C.I.R.)                      | 1.48   | 1.97 | 2.46 | 2.96 | 3.45 | 3.94       | 1.97                               | 2.46 | 2.96 | 3.45 | 3.94 |
| Maximum (PSI)                              | 2500   | 2500 | 2500 | 2500 | 2250 | 2250       | 3000                               | 3000 | 3000 | 2500 | 2500 |
| IN   | OUT    | CW   |      | CCW  |      |            |                                    |      |      |      |      |
|  |        |      |      |      |      |            | <b>Metric Split Flange Porting</b> |      |      |      |      |
| 3/4"                                       | -      | VN   | VQ   | X    | X    | X          | X                                  | X    | X    |      | X    |
| -  | 3/4"   | VQ   | VN   | X    | X    | X          | X                                  | X    |      |      | X    |
| 3/4"                                       | 3/4"   | VS   | VS   | X    | X    |            |                                    |      |      |      | X    |
| 1"   | 3/4"   | RV   | VT   | X    | X    | X          | X                                  |      |      | X*   | X    |
| 1 1/4"                                     | 3/4"   | RW   | RU   |      | X*   |            | X                                  |      | X*   | X*   |      |
| 1"   | -      | UL   | UR   | X    | X    | X          | X                                  | X    | 2500 | X    | X    |
| -  | 1"     | UR   | UL   | X    | X    | X          | X                                  | X    | 2500 | X    | X    |
| 1"   | 1"     | UM   | UM   |      | X    | X          | X                                  |      | X    | X    | X    |
| 1 1/4"                                     | 1"     | UX   | VU   |      | X*   | X          | X                                  | X    | X*   | X*   | X    |
| 1 1/2"                                     | 1"     | VO   | HO   |      |      |            | X*                                 | X    |      | X*   | X*   |
| 1 1/4"                                     | -      | NO   | UO   |      |      | X          |                                    | X    | X*   | 2500 |      |
| -  | 1 1/4" | UO   | NO   |      |      | X          |                                    | X    | X*   | 2500 |      |
| 1 1/4"                                     | 1 1/4" | PO   | PO   |      | X    | X          | X                                  |      |      |      | X    |
| 1 1/2"                                     | 1 1/4" | SO   | QO   |      |      | X*         | X                                  |      |      | X*   | X*   |
| 1 1/2"                                     | -      | UY   | TO   |      | X*   | 2000       |                                    |      |      | X*   | X    |
| -  | 1 1/2" | TO   | UY   |      |      | 2000       |                                    |      |      |      | X    |

\* This porting is acceptable for low pressure inlet port only.

**NOTES**

1. Shaded cells are acceptable for motor codes.
2. "X" Means both codes are available.
3. "2000" or "2500" indicates maximum pressure rating on port.

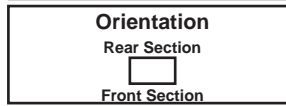
| <b>Box 7 Gear Width</b> |                        |                       |              |                    |
|-------------------------|------------------------|-----------------------|--------------|--------------------|
| <b>030 Series</b>       |                        |                       |              |                    |
| Gear Width              | in. <sup>3</sup> /rev. | cm <sup>3</sup> /rev. | Max Pressure |                    |
| 05                      | 1/2"                   | 0.99                  | 16.1         | 2500 psi (172 bar) |
| 07                      | 3/4"                   | 1.48                  | 24.2         | 2500 psi (172 bar) |
| 10                      | 1"                     | 1.97                  | 32.3         | 2500 psi (172 bar) |
| 12                      | 1 1/4"                 | 2.46                  | 40.4         | 2500 psi (172 bar) |
| 15                      | 1 1/2"                 | 2.96                  | 48.4         | 2500 psi (172 bar) |
| 17                      | 1 3/4"                 | 3.45                  | 56.5         | 2250 psi (155 bar) |
| 20                      | 2"                     | 3.94                  | 64.6         | 2250 psi (155 bar) |
| <b>031 Series</b>       |                        |                       |              |                    |
| Gear Width              | in. <sup>3</sup> /rev. | cm <sup>3</sup> /rev. | Max Pressure |                    |
| 05                      | 1/2"                   | 0.99                  | 16.1         | 3000 psi (207 bar) |
| 07                      | 3/4"                   | 1.48                  | 24.2         | 3000 psi (207 bar) |
| 10                      | 1"                     | 1.97                  | 32.3         | 3000 psi (207 bar) |
| 12                      | 1 1/4"                 | 2.46                  | 40.4         | 3000 psi (207 bar) |
| 15                      | 1 1/2"                 | 2.96                  | 48.4         | 3000 psi (207 bar) |
| 17                      | 1 3/4"                 | 3.45                  | 56.5         | 2500 psi (172 bar) |
| 20                      | 2"                     | 3.94                  | 64.6         | 2500 psi (172 bar) |

**Box 8 Shaft Type** (type 1 unless noted)

For single, tandem, or two-piece shaft unless noted.

|    |  |
|----|--|
| 07 | SAE "C" 14 tooth spline 1.25" dia., ANSI 32-4 (two piece only)   |
| 12 | Keyed shaft .75 dia., .19"X.19"X1.56" key (two piece only)   |
| 14 | 030-030, 031-031 piggyback shaft   |
| 22 | 050-030, 051-031 piggyback shaft   |
| 23 | 075-030, 076-031 piggyback shaft   |
| 25 | SAE "B" 13 tooth spline .88" dia., ANSI 22-4   |
| 30 | SAE "B" keyed .88" dia., 1/4"X3/8" X 1" key, ANSI 22-1   |
| 32 | Clutch pump shaft, tapered & keyed, 1:4 taper (single & two piece), #6 woodruff key                          |
| 43 | SAE "B-B" keyed 1.00" dia. 1/4"X3/8"X1 1/4" key, ANSI 25-1 modified length                                   |
| 65 | SAE "B" 13 tooth spline .875" dia., ANSI 22-4, <b>type 2</b> (single & tandem)                               |
| 66 | SAE "B" keyed .88" dia, 1/4"X3/8"X1" key, <b>type 2</b> (single & tandem)                                    |
| 67 | SAE "B-B" keyed 1.00" dia., 1/4"X3/8"X1 1/4" key, ANSI 25-1 modified length, <b>type 2</b> (single & tandem) |
| 68 | 6 tooth spline 1.00" dia.  |
| 90 | SAE "B" keyed w/ 5/8"-18 thread, .875" dia, ANSI 22-2 modified length (single & tandem)                      |
| 95 | SAE "A" 9 tooth spline, .62" dia. ANSI 16-4 (single only)  |
| 98 | SAE "B-B" 15 tooth spline, 1.00" dia., ANSI 25-4 (single & tandem)   |

**Box 9 Bearing Carriers Pump Only**



**Common Inlet Passage**

| IN | OUT | CW       | CCW      |
|----|-----|----------|----------|
| -  | -   |          |          |
|    |     | <b>C</b> | <b>D</b> |
| *  | -   | <b>A</b> | <b>U</b> |

\* 031 Series only. Used when only one adjacent gear housing has an inlet port.

**NPT Porting**  
(030 Series only)

|        |      |  |   |
|--------|------|--|---|
| 1"     | -    |  |   |
| 1 1/4" | -    |  |   |
| 1"     | 3/4" |  |   |
| 1 1/4" | 3/4" |  |   |
| 1 1/4" | 1"   |  |   |
| 1"     | 3/4" |  |   |
| 1 1/4" | 3/4" |  |   |
| 1 1/4" | 1"   |  |   |
| 1 1/2" | 1"   |  | - |
| 1"     | 3/4" |  |   |
| 1"     | 3/4" |  |   |

**ODT Porting**

|          |      |  |  |
|----------|------|--|--|
| 1"       | -    |  |  |
| 1 1/4"   | -    |  |  |
| 1 1/2"   | -    |  |  |
| *        | -    |  |  |
| 1"       | 3/4" |  |  |
| 1 1/4"   | 3/4" |  |  |
| 1 1/2"   | 3/4" |  |  |
| 1 1/4"   | 1"   |  |  |
| 1 1/2"   | 1"   |  |  |
| 1"       | 3/4" |  |  |
| 1 1/4"   | 3/4" |  |  |
| * 1 1/2" | 3/4" |  |  |
| 1 1/4"   | 1"   |  |  |
| 1 1/2"   | 1"   |  |  |

\* 030 Series only.

|    |      |  |  |
|----|------|--|--|
| 1" | 3/4" |  |  |
| 1" | 3/4" |  |  |

**Split Flange Porting**

| IN       | OUT  | CW | CCW |
|----------|------|----|-----|
| 1"       | -    |    |     |
| 1 1/4"   | -    |    |     |
| 1 1/2"   | -    |    |     |
| -        | 3/4" |    |     |
| 1"       | 3/4" |    |     |
| 1 1/4"   | 3/4" |    |     |
| 1 1/2"   | 3/4" |    |     |
| 1 1/4"   | 1"   |    |     |
| 1 1/2"   | 1"   |    |     |
| 1"       | 3/4" |    |     |
| 1 1/4"   | 3/4" |    |     |
| * 1 1/2" | 3/4" |    |     |
| 1 1/4"   | 1"   |    |     |
| 1 1/2"   | 1"   |    |     |
| 1"       | 3/4" |    |     |
| 1"       | 3/4" |    |     |

\* 030 Series only.

**BSP Porting**

|        |      |  |  |
|--------|------|--|--|
| 1"     | -    |  |  |
| 1 1/4" | -    |  |  |
| 1 1/2" | -    |  |  |
| *      | -    |  |  |
| 1"     | 3/4" |  |  |
| 1 1/4" | 3/4" |  |  |
| 1 1/2" | 3/4" |  |  |
| 1 1/4" | 1"   |  |  |
| 1 1/2" | 1"   |  |  |
| 1"     | 3/4" |  |  |
| 1 1/4" | 3/4" |  |  |
| 1 1/2" | 3/4" |  |  |
| 1 1/4" | 1"   |  |  |
| 1 1/2" | 1"   |  |  |
| 1"     | 3/4" |  |  |
| 1"     | 3/4" |  |  |

\* 031 Series only.



**Box 9 Bearing Carriers (Pump Only) - continued**

**Metric Split Flange Porting**

| IN     | OUT  | CW | CCW |
|--------|------|----|-----|
| 1"     | -    | CH | HC  |
| 1 1/4" | -    | DH | HD  |
| 1 1/2" | -    | FH | HF  |
| -      | 3/4" | PW | WP  |
| 1"     | 3/4" | CW | WC  |
| 1 1/4" | 3/4" | DW | WD  |
| 1 1/2" | 3/4" | FW | WF  |
| 1 1/4" | 1"   | DC | CD  |
| 1 1/2" | 1"   | FC | CF  |
| 1"     | 3/4" | GQ | QG  |
| 1 1/4" | 3/4" | HQ | QH  |
| 1 1/2" | 3/4" | WQ | QW  |
| 1 1/4" | 1"   | HS | SH  |
| 1 1/2" | 1"   | WS | SW  |
| 1"     | 3/4" | ST | TS  |
| 1"     | 3/4" | PX | XP  |

**Metric Straight Thread Porting**

| IN     | OUT  | CW | CCW |
|--------|------|----|-----|
| 1"     | -    | CL | LC  |
| 1 1/4" | -    | DL | LD  |
| 1 1/2" | -    | FL | LF  |
| 1"     | 3/4" | CZ | ZC  |
| 1 1/4" | 3/4" | DZ | ZD  |
| 1 1/2" | 3/4" | FZ | ZF  |
| 1 1/4" | 1"   | DN | ND  |
| 1 1/2" | 1"   | FN | NF  |
| 1"     | 3/4" | GT | TG  |
| 1 1/4" | 3/4" | HT | TH  |
| 1 1/4" | 1"   | HV | VH  |
| 1 1/2" | 1"   | WV | VW  |
| 1"     | 3/4" | KL | LK  |
| 1"     | 3/4" | PV | VP  |

**Box 9 Bearing Carriers (Motor Only)**

**No Ports**

| IN | OUT | DUAL |
|----|-----|------|
| -  | -   | B    |

**NPT Porting (030 Series only)**

| IN     | OUT    | DUAL |
|--------|--------|------|
| 1"     | 1"     | TT   |
| 1 1/4" | 1 1/4" | VV   |

**ODT Porting**

| IN     | OUT    | DUAL |
|--------|--------|------|
| 1"     | 1"     | CC   |
| 1 1/4" | 1 1/4" | BB   |
| 1 1/2" | 1 1/2" | FF   |

**Split Flange Porting**

| IN     | OUT    | DUAL |
|--------|--------|------|
| 1"     | 1"     | LL   |
| 1 1/4" | 1 1/4" | MM   |
| 1 1/2" | 1 1/2" | NN   |

**BSPP Porting**

| IN     | OUT    | DUAL |
|--------|--------|------|
| 1"     | 1"     | EE   |
| 1 1/4" | 1 1/4" | GG   |

**Box 10 Connecting Shaft**

For connecting tandem units.

**1 Connecting Shaft - Multiple Units**

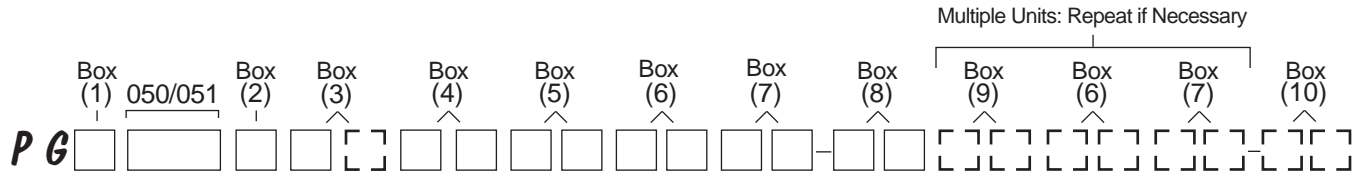
**14** Piggyback Pump Connecting Shaft 030 to 030, 031 to 031

**22** Piggyback Pump Connecting Shaft 050 to 030, 051 to 031

**23** Piggyback Pump Connecting Shaft 075 to 030, 076 to 031

**NOTE**

Split flange thread depths may be more shallow than S.A.E. standard. Contact Product Support Department for actual dimensions.



**Box 1 Pump/Motor**

|          |       |
|----------|-------|
| <b>P</b> | Pump  |
| <b>M</b> | Motor |

**Box 2 Unit**

|          |   |
|----------|---|
| <b>A</b> | Single Unit   |
| <b>B</b> | Tandem Unit   |
| <b>C</b> | Single or Tandem w. two-piece shaft (O.B. bearing required) |

**Box 3 Shaft End Cover**

|           |   |
|-----------|---|
| <b>1</b>  | Pump, cw w/o O.B. bearing                               |
| <b>2</b>  | Pump, ccw w/o O.B. bearing                              |
| <b>3</b>  | Pump, bi-rotational w/o O.B. bearing (050 series only)  |
| <b>4</b>  | Pump, cw with O.B. bearing                              |
| <b>5</b>  | Pump, ccw with O.B. bearing                             |
| <b>6</b>  | Pump, bi-rotational with O.B. bearing (050 series only) |
| <b>8</b>  | Motor, bi-rot. with O.B. bearing + ¼" NPT drain         |
| <b>9</b>  | Motor, bi-rot. w/o O.B. bearing + ¼" NPT drain          |
| <b>18</b> | Motor, bi-rot. with O.B. bearing + ¼" BSPP drain        |
| <b>19</b> | Motor, bi-rot. w/o O.B. bearing + ¼" BSPP drain         |

**Box 4 Shaft End Cover (type 1 unless noted)**

|           |  |
|-----------|--|
| <b>00</b> | 4 bolt pad mount   |
| <b>42</b> | SAE 4 bolt "B" ANSI 101-4: Pilot dia. 4"                 |
| <b>78</b> | SAE 4 bolt "C" ANSI 127-4: Pilot dia. 5"                 |
| <b>91</b> | 050-050, 051-051 for piggyback: Pilot dia. 4"            |
| <b>92</b> | 075-050, 076-051 for piggyback: Pilot dia. 5"            |
| <b>96</b> | SAE 2 bolt "B" ANSI 101-2, <b>type 2</b> : Pilot dia. 4" |
| <b>97</b> | SAE 2 bolt "B" ANSI 101-2: Pilot dia. 4"                 |
| <b>98</b> | SAE 2 bolt "C" ANSI 127-2: Pilot dia. 5"                 |
| <b>99</b> | SAE 2 bolt "C" ANSI 127-2, <b>type 2</b> : Pilot dia. 5" |

**Box 5 Port End Cover (Rear Ported)**

| Left            | Right | Single    | Tandem    | Extended Studs |
|-----------------|-------|-----------|-----------|----------------|
| <b>Unported</b> |       |           |           |                |
| -               | -     | <b>BE</b> | <b>BI</b> | <b>BY</b>      |

**NPT Porting (050 series only)**

|    |    |           |           |           |
|----|----|-----------|-----------|-----------|
| ¾" | -  | <b>KE</b> | <b>KI</b> | <b>KY</b> |
| -  | ¾" | <b>LE</b> | <b>LI</b> | <b>LY</b> |
| ¾" | ¾" | <b>ME</b> | <b>MI</b> | <b>MY</b> |

**O.D.T. Porting**

|    |    |           |           |           |
|----|----|-----------|-----------|-----------|
| ¾" | -  | <b>CE</b> | <b>CI</b> | <b>CY</b> |
| -  | ¾" | <b>DE</b> | <b>DI</b> | <b>DY</b> |
| ¾" | ¾" | <b>FE</b> | <b>FI</b> | <b>FY</b> |

**Box 5 Port End Cover continued**

| Left                | Right | Single    | Tandem    | Extended Studs |
|---------------------|-------|-----------|-----------|----------------|
| <b>BSPP Porting</b> |       |           |           |                |
| ¾"                  | -     | <b>WE</b> | <b>WI</b> | <b>WY</b>      |
| -                   | ¾"    | <b>XE</b> | <b>XI</b> | <b>XY</b>      |
| ¾"                  | ¾"    | <b>ZE</b> | <b>ZI</b> | <b>ZY</b>      |

**Metric Straight Thread**

|    |    |           |           |           |
|----|----|-----------|-----------|-----------|
| ¾" | -  | <b>NE</b> | <b>NI</b> | <b>NY</b> |
| -  | ¾" | <b>PE</b> | <b>PI</b> | <b>PY</b> |
| ¾" | ¾" | <b>QE</b> | <b>QI</b> | <b>QY</b> |

**Note**  
¾" PEC ports are rated to 2500 PSI max.

|  | CW        | CCW       | Double    |
|--|-----------|-----------|-----------|
| <b>Piggyback Port End - Pump Only</b>    |           |           |           |
| Type 050-050, 051-051 & 050-030, 051-031 | <b>KO</b> | <b>LO</b> | <b>MO</b> |

- Optional:
- Port end cover with integral R/V
  - Larger rear ports  
1 ¼ x 1 S.F. or ODT
  - Larger side ports  
1 ¼ S.F. or ODT inlet  
1" ODT outlet
  - Larger rear ports, but requires special gear housing and cap screws  
1 ½ x 1 ½ NPT up to 1500 PSI

Contact Product Support Development for additional information.

**FOR ALL UNITS**  
To determine direction of shaft rotation, view the unit with the shaft pointing toward you, and the idler (driven) gear beneath the shaft. With clockwise rotation, flow will be left to right. The inlet pump port will be on the left, outlet on the right. The flow is in the opposite direction with counter-clockwise rotation. Inverting the pump will reverse the inlet and outlet ports but not the direction of rotation.

| Box 6 Gear Housing    |        |      |      |      |       |       |       |      |    |            |      |      |       |      |      |      |                 |
|-----------------------|--------|------|------|------|-------|-------|-------|------|----|------------|------|------|-------|------|------|------|-----------------|
| 050 Series            |        |      |      |      |       |       |       |      |    | 051 Series |      |      |       |      |      |      |                 |
| Housing Code          | 07     | 10   | 12   | 15   | 17    | 20    | 22    | 25   |    | 10         | 12   | 15   | 17    | 20   | 22   | 25   |                 |
| Displacement (C.I.R.) | 1.91   | 2.55 | 3.19 | 3.83 | 4.46  | 5.10  | 5.74  | 6.38 |    | 2.55       | 3.19 | 3.83 | 4.46  | 5.10 | 5.74 | 6.38 |                 |
| Maximum (PSI)         | 2500   | 2500 | 2500 | 2500 | 2000  | 2000  | 2000  | 2000 |    | 3000       | 3000 | 3000 | 3000  | 2500 | 2500 | 2500 |                 |
| IN                    | OUT    | CW   |      | CCW  |       |       |       |      |    |            |      |      |       |      |      |      |                 |
| -                     | -      | AB   | AB   | X    | X     | X     | X     | X    | X  | X          | X    | X    | X     | X    | X    | X    | No Porting      |
|                       |        |      |      |      |       |       |       |      |    |            |      |      |       |      |      |      | NPT Porting     |
| 3/4"                  | -      | IC   | ID   |      | X     | X     | X     | X    |    |            |      |      |       |      |      |      |                 |
| -                     | 3/4"   | ID   | IC   |      | X     | X     | X     | X    |    |            |      |      |       |      |      |      |                 |
| 3/4"                  | 3/4"   | IF   | IF   |      | X     | X     | X     | X    | X  |            |      |      |       |      |      |      |                 |
| 1"                    | 3/4"   | IJ   | IG   |      | X*    | X     | X     | X    | X  |            |      |      |       |      |      |      |                 |
| 1 1/4"                | 3/4"   | IK   | IH   |      |       |       | X     |      |    |            |      |      |       |      |      |      |                 |
| 1"                    | -      | YC   | YD   |      |       | X     | X     | X    | X  | X          |      |      |       |      |      |      |                 |
| -                     | 1"     | YD   | YC   |      |       | X     | X     | X    | X  | X          |      |      |       |      |      |      |                 |
| 1"                    | 1"     | YF   | YF   |      |       | X     | X     | X    | X  | X          | X    |      |       |      |      |      |                 |
| 1 1/4"                | 1"     | YJ   | YG   |      |       |       | X*    | X    | X  | X          | X    |      |       |      |      |      |                 |
| 1 1/4"                | -      | IA   | IB   |      |       |       | X*    | X*   | X  | X          | X    |      |       |      |      |      |                 |
| -                     | 1 1/4" | IB   | IA   |      |       |       |       |      | X  | X          | X    |      |       |      |      |      |                 |
| 1 1/4"                | 1 1/4" | YL   | YL   |      |       |       |       | X    | X  | X          | X    |      |       |      |      |      |                 |
| 1 1/2"                | 1"     | YK   | YH   |      |       |       |       |      |    |            |      |      |       |      |      | X    |                 |
| 1 1/2"                | 1 1/4" | YP   | YM   |      |       |       |       |      | X* | X          | X    |      |       |      |      |      |                 |
| 1 1/2"                | 1 1/2" | YR   | YR   |      |       |       |       |      |    |            | X    |      |       |      |      |      |                 |
|                       |        |      |      |      |       |       |       |      |    |            |      |      |       |      |      |      | OD Tube Porting |
| 3/4"                  | -      | EC   | ED   |      | 2000  | 2000  | X     | X    | X  |            | X*   | X*   |       | X    |      |      |                 |
| -                     | 3/4"   | ED   | EC   |      | 2000  | 2000  | X     | X    | X  |            |      |      |       | X    |      |      |                 |
| 3/4"                  | 3/4"   | EF   | EF   |      | 2000  | 2000  | X     | X    | X  |            |      |      | 2500  | X    |      |      |                 |
| 1"                    | 3/4"   | EJ   | EG   |      | 2000* | 2000* | X*    | X*   | X  |            |      |      |       | X*   |      |      |                 |
| 1 1/4"                | 3/4"   | EK   | EH   |      |       |       | X*    | X*   |    |            |      |      | 2500* | X    |      |      |                 |
| 1"                    | -      | AC   | AD   |      | X*    | X*    | 2000  | X    | X  | X          | X    |      | X*    | X*   | X*   | X*   | X               |
| -                     | 1"     | AD   | AC   |      |       |       | 2000  | X    | X  | X          | X    |      |       |      |      |      | X               |
| 1"                    | 1"     | AF   | AF   |      |       |       | 2000  | X    | X  |            | X    |      |       |      | X    | X    | X               |
| 1 1/4"                | 1"     | AJ   | AG   |      |       |       | 2000* | X*   | X* | X          | X    |      |       |      | X*   |      |                 |
| 1 1/2"                | 1"     | AK   | AH   |      |       |       |       | X*   | X* | X*         |      |      |       |      | X*   |      | X               |
| 1 1/4"                | -      | AA   | AO   |      |       |       | X*    | X*   | X* | X          | X    |      |       | X*   | X*   |      | X               |
| -                     | 1 1/4" | AO   | AA   |      |       |       |       |      |    | X          | X    |      |       |      |      |      | X               |
| 1 1/4"                | 1 1/4" | AL   | AL   |      |       |       |       |      | X  | X          | X    |      |       |      |      |      | X               |
| 1 1/2"                | 1 1/4" | AP   | AM   |      |       |       |       | X*   | X* | X          |      |      |       |      |      |      | X               |
| 1 1/2"                | -      | AE   | AU   |      |       |       |       | X*   | X* |            |      |      |       | X*   | X    |      | X               |
| -                     | 1 1/2" | AU   | AE   |      |       |       |       | X*   | X  |            |      |      |       |      |      |      | X               |
| 1 1/2"                | 1 1/2" | AR   | AR   |      |       |       |       |      |    |            | X    |      |       |      |      |      | X               |

\* This porting is acceptable for low pressure inlet port only.

NOTES

1. NPT ports are not recommended for use at pressures in excess of 1500 PSI.
2. Shaded cells are acceptable for motor codes.
3. "X" Means both codes are available.
4. "2000" or "2500" indicates maximum pressure rating on port.

| Box 6 Gear Housing <i>continued</i> |        |            |      |       |       |      |      |      |            |       |                             |      |                               |      |      |
|-------------------------------------|--------|------------|------|-------|-------|------|------|------|------------|-------|-----------------------------|------|-------------------------------|------|------|
|                                     |        | 050 Series |      |       |       |      |      |      | 051 Series |       |                             |      |                               |      |      |
| Housing Code                        |        | 10         | 12   | 15    | 17    | 20   | 22   | 25   | 10         | 12    | 15                          | 17   | 20                            | 22   | 25   |
| Displacement (C.I.R.)               |        | 2.55       | 3.19 | 3.83  | 4.46  | 5.10 | 5.74 | 6.38 | 2.55       | 3.19  | 3.83                        | 4.46 | 5.10                          | 5.74 | 6.38 |
| Maximum (PSI)                       |        | 2500       | 2500 | 2500  | 2000  | 2000 | 2000 | 2000 | 3000       | 3000  | 3000                        | 3000 | 2500                          | 2500 | 2500 |
| IN                                  | OUT    | CW         | CCW  |       |       |      |      |      |            |       |                             |      |                               |      |      |
| 3/4"                                | -      | UC         | UD   | X     | X     | X    | X    |      | 2500       | X     | <b>Split Flange Porting</b> |      |                               |      |      |
| -                                   | 3/4"   | UD         | UC   | X     | X     | X    | X    |      | 2500       | X     |                             |      |                               |      |      |
| 3/4"                                | 3/4"   | UF         | UF   |       |       |      | X    | X    | 2500       | X     | X                           |      |                               |      |      |
| 1"                                  | 3/4"   | UJ         | UG   | X*    | X*    | X    | X    | X    | 2500*      | X*    | X*                          |      |                               |      |      |
| 1 1/4"                              | 3/4"   | UK         | UH   |       |       |      |      |      |            | X*    | X*                          | X*   |                               |      |      |
| 1"                                  | -      | OC         | OD   | 2000  | X*    | X    | X    | X    |            | X*    | 2500                        | X    | X                             |      |      |
| -                                   | 1"     | OD         | OC   | 2000  | 2000  | X    | X    | X    |            | 2500  | X                           | X    |                               |      |      |
| 1"                                  | 1"     | OF         | OF   |       | 2000  | X    | X    | X    |            | 2500  | X                           | X    | X                             | X    |      |
| 1 1/4"                              | 1"     | OJ         | OG   |       | 2000* | X*   | X*   | X    |            | 2500* | X*                          | X*   |                               |      |      |
| 1 1/2"                              | 1"     | OK         | OH   |       |       | X*   | X*   | X*   |            | 2500* | X*                          | X*   | X                             | X    |      |
| 1 1/4"                              | -      | OA         | OB   |       | X*    | X*   | X*   | X    |            | X*    | X*                          |      |                               |      |      |
| -                                   | 1 1/4" | OA         | OB   |       |       |      | X    | X    |            |       |                             |      |                               |      |      |
| 1 1/4"                              | 1 1/4" | OL         | OL   |       | 2000  | X    | X    | X    |            |       |                             | X    | X                             | X    |      |
| 1 1/2"                              | 1 1/4" | OP         | OM   |       | 2000* | X*   | X*   | X    |            |       |                             | X*   | X                             | X    |      |
| 1 1/2"                              | -      | OE         | OU   |       |       | X*   | X*   | X    |            |       | X*                          | X*   | X*                            |      |      |
| -                                   | 1 1/2" | OU         | OE   |       |       |      | X    | X    |            |       |                             |      |                               |      |      |
| 1 1/2"                              | 1 1/2" | OR         | OR   |       |       |      | X    | X    |            |       |                             |      | X                             | X    |      |
| 2"                                  | -      | XB         | ZB   |       |       |      |      |      |            |       |                             |      | X*                            |      |      |
| 2"                                  | 1"     | UQ         | UB   |       |       | X*   | X*   | X*   |            |       |                             |      |                               |      |      |
| 2"                                  | 1 1/4" | OQ         | ON   |       |       | X*   | X*   | X*   |            |       | X*                          | X*   | X*                            |      |      |
| 2"                                  | 1 1/2" | OV         | OS   |       |       | X*   | X*   | X*   |            |       |                             | X*   | X*                            |      |      |
| 2"                                  | 2"     | OX         | OX   |       |       |      |      | X*   |            |       |                             |      |                               |      |      |
|                                     |        |            |      |       |       |      |      |      |            |       |                             |      | <b>BSP Porting</b>            |      |      |
| 3/4"                                | -      | YN         | YQ   | X*    | X     | X    | X    |      | X*         | 2500  | 2500                        | X    | X                             |      |      |
| -                                   | 3/4"   | YQ         | YN   |       | X     | X    | X    |      |            | 2500  | 2500                        | X    | X                             |      |      |
| 3/4"                                | 3/4"   | YS         | YS   | 2000  | X     | X    |      | X    |            | 2500  | 2500                        |      | X                             |      |      |
| 1"                                  | 3/4"   | YV         | YT   | 2000* | X*    | X*   | X*   | X    |            | 2500* | 2500*                       | X*   | X*                            |      |      |
| 1 1/4"                              | 3/4"   | YW         | YU   |       |       | X*   |      |      |            |       |                             |      |                               |      |      |
| 1"                                  | -      | SL         | RQ   |       | X*    | X*   | X*   | X    | X          | X     | X*                          | X*   | X*                            | X    | X    |
| -                                   | 1"     | RQ         | SL   |       |       |      | X    | X    | X          |       |                             | 2500 | X                             | X    |      |
| 1"                                  | 1"     | MP         | MP   |       | 2000  | X    | X    |      |            |       | 2500                        |      | X                             |      |      |
| 1 1/4"                              | 1"     | IX         | VY   |       | 2000* | X*   | X*   | X    |            |       | 2500*                       | X    | X                             |      |      |
| 1 1/2"                              | 1"     | VI         | HW   |       |       |      |      | X    |            |       | X*                          | X*   |                               |      |      |
| 1 1/4"                              | -      | NJ         | UI   |       |       | X*   |      | X    | X          |       |                             |      | X                             | X    |      |
| -                                   | 1 1/4" | UI         | NJ   |       |       |      | X    | X    |            |       |                             |      | X                             | X    |      |
| 1 1/4"                              | 1 1/4" | PF         | PF   |       |       |      |      | X    | X          |       |                             |      | X                             | X    |      |
| 1 1/2"                              | 1 1/4" | IS         | IQ   |       |       |      |      | X    |            |       |                             |      |                               | X*   |      |
|                                     |        |            |      |       |       |      |      |      |            |       |                             |      | <b>Metric Straight Thread</b> |      |      |
| 3/4"                                | -      | EN         | TQ   | X*    | X     | X    | X    |      | X*         | X*    | X*                          | X    |                               |      |      |
| -                                   | 3/4"   | TQ         | EN   |       | X     | X    | X    |      |            | 2500  | 2500                        | X    |                               |      |      |
| 3/4"                                | 3/4"   | ES         | ES   | 2000  | X     |      |      |      |            | 2500  |                             |      |                               |      |      |
| 1"                                  | 3/4"   | EV         | ET   | 2000* | X*    | X*   | X    | X    |            | 2500* | 2500*                       | X*   | X*                            |      |      |
| 1"                                  | -      | NL         | ER   |       |       | X*   | X    | X    | X          |       | X*                          | X*   | X*                            | X    |      |
| -                                   | 1"     | ER         | NL   |       |       |      | X    | X    | X          |       |                             |      |                               |      |      |
| 1"                                  | 1"     | CM         | CM   |       | 2000  | X    | X    |      |            |       | 2500                        |      |                               |      |      |
| 1 1/4"                              | -      | UA         |      |       |       |      | X*   | X    | X          |       |                             | X*   | X                             | X    |      |
| 1 1/4"                              | 1"     | EX         | VE   |       | 2000* | X*   | X*   | X    | X          |       | 2500*                       | X*   | X                             | X    |      |
| 1 1/4"                              | 1 1/4" | PA         | PA   |       |       |      | X*   | X    | X          |       |                             |      | X                             | X    |      |
| 1 1/2"                              | 1 1/4" | SA         | QA   |       |       |      | X*   | X*   | X          |       |                             |      | X*                            | X*   |      |

\* This porting is acceptable for low pressure inlet port only.

NOTES

1. Shaded cells are acceptable for motor codes.
2. "X" Means both codes are available.
3. "2000" or "2500" indicates maximum pressure rating on port.



| Box 6 Gear Housing <i>continued</i> |            |      |      |       |      |      |      |                                    |            |       |      |      |      |      |  |
|-------------------------------------|------------|------|------|-------|------|------|------|------------------------------------|------------|-------|------|------|------|------|--|
|                                     | 050 Series |      |      |       |      |      |      |                                    | 051 Series |       |      |      |      |      |  |
| Housing Code                        | 10         | 12   | 15   | 17    | 20   | 22   | 25   | 10                                 | 12         | 15    | 17   | 20   | 22   | 25   |  |
| Displacement (C.I.R.)               | 2.55       | 3.19 | 3.83 | 4.46  | 5.10 | 5.74 | 6.38 | 2.55                               | 3.19       | 3.83  | 4.46 | 5.10 | 5.74 | 6.38 |  |
| Maximum (PSI)                       | 2500       | 2500 | 2500 | 2000  | 2000 | 2000 | 2000 | 3000                               | 3000       | 3000  | 3000 | 2500 | 2500 | 2500 |  |
| IN                                  | OUT        | CW   | CCW  |       |      |      |      |                                    |            |       |      |      |      |      |  |
| 3/4"                                | -          | VN   | VQ   | X     | X    | X    | X    | <b>Metric Split Flange Porting</b> |            |       |      |      |      | X*   |  |
| -                                   | 3/4"       | VQ   | VN   | X     | X    | X    | X    |                                    |            |       |      |      |      |      |  |
| 1"                                  | 3/4"       | RV   | VT   | X*    | X*   | X    | X    | X                                  | 2500*      |       | X*   |      |      |      |  |
| 1 1/4"                              | 3/4"       | RW   | RU   |       |      |      |      |                                    |            |       |      |      |      |      |  |
| 1"                                  | -          | UL   | UR   | X*    | X    | X    | X    | X                                  | X*         |       | X*   |      |      |      |  |
| -                                   | 1"         | UR   | UL   |       |      |      |      |                                    |            |       |      |      |      |      |  |
| 1"                                  | 1"         | UM   | UM   | 2000  |      | X    | X    | X                                  | X          | 2500  |      | X    |      |      |  |
| 1 1/4"                              | 1"         | UX   | VU   | 2000* |      | X*   | X*   | X                                  | X          |       |      |      |      |      |  |
| 1 1/2"                              | 1"         | VO   | HO   |       |      | X*   | X*   | X*                                 | 2500*      |       | X*   |      |      |      |  |
| 1 1/4"                              | -          | NO   | UO   |       |      |      |      |                                    |            |       |      |      |      |      |  |
| -                                   | 1 1/4"     | UO   | NO   |       |      |      |      | X                                  | X          | X     |      |      |      |      |  |
| 1 1/4"                              | 1 1/4"     | PO   | PO   | 2000  |      | X    | X    | X                                  | X          | 2500* |      | X*   |      |      |  |
| 1 1/2"                              | 1 1/4"     | SO   | QO   | 2000* |      | X*   | X*   | X                                  | X          |       |      |      |      |      |  |
| 1 1/2"                              | -          | UY   | TO   |       |      | X*   | X*   | X                                  | X*         |       | X*   |      |      |      |  |
| -                                   | 1 1/2"     | TO   | UY   |       |      |      |      |                                    |            |       |      |      |      |      |  |
| 1 1/2"                              | 1 1/2"     | SV   | SV   |       |      |      |      | X                                  | X          | X     |      |      |      |      |  |
| 2"                                  | 1 1/4"     | JM   | JR   |       |      |      |      | X*                                 | X*         | X*    |      |      |      |      |  |
| 2"                                  | 1 1/2"     | JQ   | JN   |       |      |      |      | X*                                 | X*         | X*    |      |      |      |      |  |

\*This porting is acceptable for low pressure inlet port only.

**NOTES**

1. Shaded cells are acceptable for motor codes.
2. "X" Means both codes are available.
3. "2000" or "2500" indicates maximum pressure rating on port.

| Box 7 Gear Width |            |                        |                       |                    |
|------------------|------------|------------------------|-----------------------|--------------------|
| 050 Series       |            |                        |                       |                    |
|                  | Gear Width | in. <sup>3</sup> /rev. | cm <sup>3</sup> /rev. | Max Pressure       |
| 05               | 1/2"       | 1.28                   | 20.9                  | 2500 psi (172 bar) |
| 07               | 3/4"       | 1.91                   | 31.3                  | 2500 psi (172 bar) |
| 10               | 1"         | 2.55                   | 41.8                  | 2500 psi (172 bar) |
| 12               | 1 1/4"     | 3.19                   | 52.2                  | 2500 psi (172 bar) |
| 15               | 1 1/2"     | 3.83                   | 62.7                  | 2500 psi (172 bar) |
| 17               | 1 3/4"     | 4.46                   | 73.1                  | 2000 psi (138 bar) |
| 20               | 2"         | 5.10                   | 83.6                  | 2000 psi (138 bar) |
| 22               | 2 1/4"     | 5.74                   | 94.0                  | 2000 psi (138 bar) |
| 25               | 2 1/2"     | 6.38                   | 104.5                 | 2000 psi (138 bar) |
| 051 Series       |            |                        |                       |                    |
|                  | Gear Width | in. <sup>3</sup> /rev. | cm <sup>3</sup> /rev. | Max Pressure       |
| 05               | 1/2"       | 1.28                   | 20.9                  | 3000 psi (207 bar) |
| 07               | 3/4"       | 1.91                   | 31.3                  | 3000 psi (207 bar) |
| 10               | 1"         | 2.55                   | 41.8                  | 3000 psi (207 bar) |
| 12               | 1 1/4"     | 3.19                   | 52.2                  | 3000 psi (207 bar) |
| 15               | 1 1/2"     | 3.83                   | 62.7                  | 3000 psi (207 bar) |
| 17               | 1 3/4"     | 4.46                   | 73.1                  | 3000 psi (207 bar) |
| 20               | 2"         | 5.10                   | 83.6                  | 2500 psi (172 bar) |
| 22               | 2 1/4"     | 5.74                   | 94.0                  | 2500 psi (172 bar) |
| 25               | 2 1/2"     | 6.38                   | 104.5                 | 2500 psi (172 bar) |

| Box 8 Shaft Type <i>(type 1 unless noted)</i>               |   |
|---|---|
| <b>For single, tandem, or two-piece shaft unless noted.</b> |   |
| 07  | SAE "C" 14 tooth spline 1.25" dia., ANSI 32-4   |
| 11  | SAE "C" keyed 1.25" dia., 5/16"X15/32"X1 1/2" key, ANSI 32-1                                |
| 22  | 050-050, 051-051 piggyback shaft  |
| 23  | 075-050, 076-051 piggyback shaft  |
| 25  | SAE "B" 13 tooth spline .88" dia., ANSI 22-4  |
| 43  | SAE "B-B" keyed 1.00" dia., 1/4"X3/8"X1 1/4" key, ANSI 25-1                                 |
| 53  | SAE "C" 14 tooth spline 1.25" dia., ANSI-32-4, <b>type 2</b> (single & tandem)              |
| 65  | SAE "B" 13 tooth spline .88" dia., ANSI 22-4, <b>type 2</b> (single & tandem)               |
| 67  | SAE "B-B" keyed 1.00 dia., 1/4"X3/8"X1 1/4" key, ANSI 25-1, <b>type 2</b> (single & tandem) |
| 73  | SAE "C" keyed 1.25" dia., 5/16" x 15/32" x 2 1/4" key, extended length (two-piece only)     |
| 98  | SAE "B-B" 15 tooth spline, 1.00" dia., ANSI 25-4 (single & tandem)                          |

**050/051 Ordering Information**

Single and Multiple Pumps and Motors  
**PGP050/051™ Series**

**Box 9 Bearing Carriers Pump Only**

**Common Inlet Passage**

| IN | OUT | CW       | CCW      |
|----|-----|----------|----------|
| -  | -   |          |          |
|    |     | <b>C</b> | <b>D</b> |
| *  | -   | <b>A</b> | <b>U</b> |

\* 051 Series only. Used when only one adjacent gear housing has an inlet port.

**NPT Porting**  
(050 Series only)

| IN     | OUT  | CW        | CCW       |
|--------|------|-----------|-----------|
| 1"     | -    | <b>TB</b> | <b>BT</b> |
| 1 1/4" | -    | <b>VB</b> | <b>BV</b> |
| 1 1/2" | -    | <b>WB</b> | <b>BW</b> |
| 1"     | 3/4" |           |           |
| 1 1/4" | 3/4" | <b>VX</b> | <b>XV</b> |
| 1 1/2" | 3/4" | <b>WX</b> | <b>XW</b> |
| 1 1/4" | 1"   | <b>VZ</b> | <b>ZV</b> |
| 1 1/2" | 1"   | <b>WZ</b> | <b>ZW</b> |
| 1"     | 3/4" |           |           |
| 1 1/4" | 3/4" | <b>VJ</b> | <b>JV</b> |
| 1 1/4" | 1"   | <b>VK</b> | <b>KV</b> |
| 1 1/2" | 1"   | <b>WK</b> | <b>KW</b> |
| 1"     | 3/4" |           |           |

**ODT Porting**

| IN                 | OUT  | CW        | CCW        |
|--------------------|------|-----------|------------|
| 1"                 | -    | <b>CB</b> | <b>BC</b>  |
| 1 1/4"             | -    | <b>DB</b> | <b>BD</b>  |
| 1 1/2"             | -    | <b>FB</b> | <b>BF</b>  |
| -                  | 3/4" |           | <b>*JP</b> |
| 1"                 | 3/4" | <b>CJ</b> | <b>JC</b>  |
| 1 1/4"             | 3/4" | <b>DJ</b> | <b>JD</b>  |
| 1 1/2"             | 3/4" | <b>FJ</b> | <b>JF</b>  |
| 1 1/4"             | 1"   | <b>DK</b> | <b>KD</b>  |
| 1 1/2"             | 1"   | <b>FK</b> | <b>KF</b>  |
| * 051 Series only. |      |           |            |
| 1"                 | 3/4" |           |            |
| 1 1/4"             | 3/4" | <b>DR</b> | <b>RD</b>  |
| * 1 1/2"           | 3/4" | <b>FR</b> | <b>RF</b>  |
| 1 1/4"             | 1"   | <b>DS</b> | <b>SD</b>  |
| 1 1/2"             | 1"   | <b>FS</b> | <b>SF</b>  |
| -                  | 1"   | <b>HZ</b> | <b>*ZH</b> |

\* 051 Series only.

|    |      |  |  |
|----|------|--|--|
| 1" | 3/4" |  |  |
|----|------|--|--|

**NOTE**

Split flange thread depths may be more shallow than S.A.E. standard. Contact Product Support Department for actual dimensions.

**Bearing Carriers (9) Pump Only - continued**

**Metric Split Flange Porting**

| IN     | OUT  | CW        | CCW       |
|--------|------|-----------|-----------|
| 1"     | -    |           |           |
| 1 1/4" | -    | <b>DH</b> | <b>HD</b> |
| 1 1/2" | -    | <b>FH</b> | <b>HF</b> |
| -      | 3/4" |           |           |
| 1"     | 3/4" | <b>CW</b> | <b>WC</b> |
| 1 1/4" | 3/4" | <b>DW</b> | <b>WD</b> |
| 1 1/2" | 3/4" | <b>FW</b> | <b>WF</b> |
| 1 1/4" | 1"   | <b>DC</b> | <b>CD</b> |
| 1 1/2" | 1"   | <b>FC</b> | <b>CF</b> |
| 1"     | 3/4" |           |           |
| 1 1/4" | 3/4" | <b>HQ</b> | <b>QH</b> |
| 1 1/2" | 3/4" | <b>WQ</b> | <b>QW</b> |
| 1 1/4" | 1"   | <b>HS</b> | <b>SH</b> |
| 1 1/2" | 1"   | <b>WS</b> | <b>SW</b> |
| 1"     | 3/4" |           |           |

**Metric Straight Thread Porting**

| IN     | OUT  | CW        | CCW       |
|--------|------|-----------|-----------|
| 1"     | -    |           |           |
| 1 1/4" | -    | <b>DL</b> | <b>LD</b> |
| 1 1/2" | -    | <b>FL</b> | <b>LF</b> |
| 1"     | 3/4" |           |           |
| 1 1/4" | 3/4" | <b>DZ</b> | <b>ZD</b> |
| 1 1/2" | 3/4" | <b>FZ</b> | <b>ZF</b> |
| 1 1/4" | 1"   | <b>DN</b> | <b>ND</b> |
| 1 1/2" | 1"   | <b>FN</b> | <b>NF</b> |
| 1"     | 3/4" |           |           |
| 1 1/4" | 3/4" | <b>HT</b> | <b>TH</b> |
| 1 1/2" | 3/4" | <b>WT</b> | <b>TW</b> |
| 1 1/4" | 1"   | <b>HV</b> | <b>VH</b> |
| 1 1/2" | 1"   | <b>WV</b> | <b>VW</b> |
| 1"     | 3/4" |           |           |

**Split Flange Porting**

| IN     | OUT  | CW        | CCW       |
|--------|------|-----------|-----------|
| 1"     | -    |           |           |
| 1 1/4" | -    | <b>MB</b> | <b>BM</b> |
| 1 1/2" | -    | <b>NB</b> | <b>BN</b> |
| -      | 3/4" |           |           |
| 1"     | 3/4" | <b>LR</b> | <b>RL</b> |
| 1 1/4" | 3/4" | <b>MR</b> | <b>RM</b> |
| 1 1/2" | 3/4" | <b>NR</b> | <b>RN</b> |
| 1 1/4" | 1"   | <b>MS</b> | <b>SM</b> |
| 1 1/2" | 1"   | <b>NS</b> | <b>SN</b> |
| 1"     | 3/4" |           |           |
| 1 1/4" | 3/4" | <b>MX</b> | <b>XM</b> |
| 1 1/4" | 1"   | <b>MZ</b> | <b>ZM</b> |
| 1 1/2" | 1"   | <b>NZ</b> | <b>ZN</b> |
| 1"     | 3/4" |           |           |

**BSPP Porting**

| IN                 | OUT  | CW        | CCW       |
|--------------------|------|-----------|-----------|
| 1"                 | -    |           |           |
| 1 1/4"             | -    | <b>DX</b> | <b>XD</b> |
| 1 1/2"             | -    | <b>FX</b> | <b>XF</b> |
| *                  | 3/4" | -         | <b>TL</b> |
| 1"                 | 3/4" | <b>CT</b> | <b>TC</b> |
| 1 1/4"             | 3/4" | <b>DT</b> | <b>TD</b> |
| 1 1/2"             | 3/4" | <b>FT</b> | <b>TF</b> |
| 1 1/4"             | 1"   | <b>DV</b> | <b>VD</b> |
| 1 1/2"             | 1"   | <b>FV</b> | <b>VF</b> |
| * 050 Series only. |      |           |           |
| 1"                 | 3/4" |           |           |
| 1 1/4"             | 3/4" | <b>HM</b> | <b>MH</b> |
| 1 1/2"             | 3/4" | <b>WM</b> | <b>MW</b> |
| 1 1/4"             | 1"   | <b>HN</b> | <b>NH</b> |
| 1 1/2"             | 1"   | <b>WN</b> | <b>NW</b> |
| 1"                 | 3/4" |           |           |

**Box 9 Bearing Carriers (Motor Only)**

**No Ports**

| IN | OUT | DUAL |
|----|-----|------|
| -  | -   |      |

**NPT Porting**  
(030 Series only)

|        |        |           |
|--------|--------|-----------|
| 1"     | 1"     | <b>TT</b> |
| 1 1/4" | 1 1/4" | <b>VV</b> |
| 1 1/2" | 1 1/2" | <b>WW</b> |

**ODT Porting**

|        |        |           |
|--------|--------|-----------|
| 1"     | 1"     | <b>CC</b> |
| 1 1/4" | 1 1/4" | <b>BB</b> |
| 1 1/2" | 1 1/2" | <b>FF</b> |

**Split Flange Porting**

|        |        |           |
|--------|--------|-----------|
| 1"     | 1"     | <b>LL</b> |
| 1 1/4" | 1 1/4" | <b>MM</b> |
| 1 1/2" | 1 1/2" | <b>NN</b> |

**BSPP Porting**

| IN     | OUT    | DUAL      |
|--------|--------|-----------|
| 1"     | 1"     |           |
| 1 1/4" | 1 1/4" | <b>GG</b> |

**Metric Split Flange Porting**

|        |        |           |
|--------|--------|-----------|
| 1"     | 1"     |           |
| 1 1/4" | 1 1/4" | <b>SS</b> |

**Metric Straight Thread Porting**

|        |        |           |
|--------|--------|-----------|
| 1"     | 1"     |           |
| 1 1/4" | 1 1/4" | <b>JJ</b> |

**Box 10 Connecting Shaft**

For connecting tandem units.

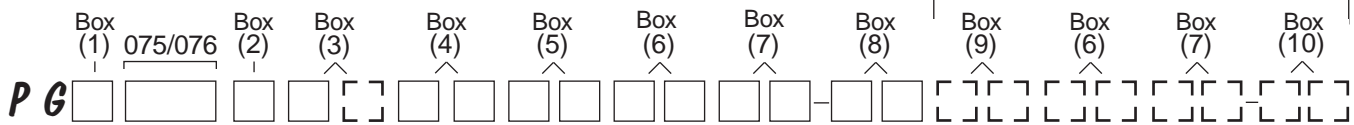
1 Connecting Shaft - Multiple Units

22 Piggyback Pump Connecting Shaft for 050 to 050, 051 to 051

23 Piggyback Pump Connecting Shaft for 075 to 050, 076 to 051



Multiple Units: Repeat if Necessary



| Box 1 Pump/Motor |       |
|------------------|-------|
| P                | Pump  |
| M                | Motor |

| Box 2 Unit |   |
|------------|---|
| A          | Single Unit   |
| B          | Tandem Unit   |
| C          | Single or Tandem w/ two-piece shaft (O.B. bearing required) |

| Box 3 Shaft End Cover |  |
|-----------------------|--|
| 1                     | Pump, cw w/o O.B. bearing                              |
| 2                     | Pump, ccw w/o O.B. bearing                             |
| 3                     | Pump, bi-rotational w/o O.B. bearing (075 series only) |
| 4                     | Pump, cw with O.B. bearing                             |
| 5                     | Pump, ccw with O.B. bearing                            |
| 6                     | Pump, bi-rotational w/ O.B. bearing (075 series only)  |
| 8                     | Motor, bi-rot. with O.B. bearing + 1/4" NPT drain      |
| 9                     | Motor, bi-rot. w/o O.B. bearing + 1/4" NPT drain       |
| 18                    | Motor, bi-rot. with O.B. bearing + 1/4" BSPP drain     |
| 19                    | Motor, bi-rot. w/o O.B. bearing + 1/4" BSPP drain      |

| Box 4 Shaft End Cover (type 1 only) |   |
|-------------------------------------|---|
| 42                                  | SAE 4 bolt "B" ANSI 101-4: Port dia. 4" |
| 78                                  | SAE 4 bolt "C" ANSI 127-4: Port dia. 5" |
| 80                                  | SAE 4 bolt "D" ANSI 152-4: Port dia. 6" |
| 98                                  | SAE 2 bolt "C" ANSI 127-2: Port dia. 5" |

**(Rear Ported)**

|                 |  |    |    |    |
|-----------------|--|----|----|----|
| <i>Unported</i> |  | BE | BI | BY |
|-----------------|--|----|----|----|

|                       |    |    |    |    |
|-----------------------|----|----|----|----|
| <i>O.D.T. Porting</i> |    | JE | JI | JY |
| 1"                    | 1" |    |    |    |

|                               |    |    |    |    |
|-------------------------------|----|----|----|----|
| <i>Metric Straight Thread</i> |    | TE | TI | TY |
| 1"                            | 1" |    |    |    |

|  |  |    |     |        |
|--|--|----|-----|--------|
|  |  | CW | CCW | Double |
| <i>Piggyback Port End - Pump Only</i>    |  |    |     |        |
| Type 075-050, 076-051 & 075-030, 076-031 |  |    |     |        |
|  |  | KO | LO  | MO     |

**For All Units**  
 To determine direction of shaft rotation, view the unit with the shaft pointing toward you, and the idler (driven) gear beneath the shaft. With clockwise rotation, flow will be left to right. The inlet pump port will be on the left, outlet on the right. The flow is in the opposite direction with counter-clockwise rotation. Inverting the pump will reverse the inlet and outlet ports but not the direction of rotation.

| Gear Housing (6)            |        |            |      |       |      |      |      |       |       |                |      |            |      |      |      |      |      |       |  |
|-----------------------------|--------|------------|------|-------|------|------|------|-------|-------|----------------|------|------------|------|------|------|------|------|-------|--|
|                             |        | 075 Series |      |       |      |      |      |       |       | 075/076 Series |      | 076 Series |      |      |      |      |      |       |  |
| Housing Code                |        | 07         | 10   | 12    | 15   | 17   | 20   | 22    | 25    | 27             | 30   | 10         | 12   | 15   | 17   | 20   | 22   | 25    |  |
| Displacement (C.I.R.)       |        | 3.07       | 4.1  | 5.12  | 6.15 | 7.17 | 8.2  | 9.22  | 10.25 | 11.275         | 12.3 | 4.1        | 5.12 | 6.15 | 7.17 | 8.2  | 9.22 | 10.25 |  |
| Maximum (PSI)               |        | 2500       | 2500 | 2500  | 2500 | 2500 | 2500 | 2250  | 2250  | 2000           | 2000 | 3000       | 3000 | 3000 | 3000 | 2500 | 2500 | 2500  |  |
| IN                          | OUT    | CW         |      | CCW   |      |      |      |       |       |                |      |            |      |      |      |      |      |       |  |
| -                           | -      | AB         | AB   | X     | X    | X    | X    | X     | X     | X              | X    | X          | X    | X    | X    | X    | X    | X     |  |
| <b>No Porting</b>           |        |            |      |       |      |      |      |       |       |                |      |            |      |      |      |      |      |       |  |
| <b>NPT Porting</b>          |        |            |      |       |      |      |      |       |       |                |      |            |      |      |      |      |      |       |  |
| 3/4"                        | -      | IC         | ID   | X     | X    | X    | X    |       |       |                |      |            |      |      |      |      |      |       |  |
| -                           | 3/4"   | ID         | IC   | X     | X    | X    | X    |       |       |                |      |            |      |      |      |      |      |       |  |
| 1"                          | 3/4"   | IJ         | IG   | X     |      |      |      |       |       |                |      |            |      |      |      |      |      |       |  |
| 1"                          | -      | YC         | YD   | X     |      |      |      | X     |       |                |      |            |      |      |      |      |      |       |  |
| -                           | 1"     | YD         | YC   | X     |      |      |      | X     |       |                |      |            |      |      |      |      |      |       |  |
| 1"                          | 1"     | YF         | YF   | X     |      |      |      | X     |       |                |      |            |      |      |      |      |      |       |  |
| 1 1/4"                      | 1"     | YJ         | YG   | X     |      |      |      | X     |       |                |      |            |      |      |      |      |      |       |  |
| 1 1/4"                      | 1 1/4" | YL         | YL   | X     |      |      |      | X     |       |                |      |            |      |      |      |      |      |       |  |
| <b>OD Tube Porting</b>      |        |            |      |       |      |      |      |       |       |                |      |            |      |      |      |      |      |       |  |
| 3/4"                        | -      | EC         | ED   | X     | X    | X    | X    |       |       |                |      |            |      |      |      |      |      |       |  |
| 1"                          | 3/4"   | EJ         | EG   | X*    | X    |      |      | X     |       | 2500*          |      |            |      |      |      |      |      |       |  |
| 1 1/4"                      | 3/4"   | EK         | EH   | X*    |      |      |      | X*    |       |                |      |            |      |      |      |      |      |       |  |
| 1"                          | -      | AC         | AD   | X     |      |      |      | X     |       | 2500 X         |      |            |      |      |      |      |      |       |  |
| -                           | 1"     | AD         | AC   | X     |      |      |      | X     |       | 2500 X         |      |            |      |      |      |      |      |       |  |
| 1"                          | 1"     | AF         | AF   | 2000  |      |      |      | X     |       | X              |      | 2500 X     |      |      |      |      |      |       |  |
| 1 1/4"                      | 1"     | AJ         | AG   | 2000* |      |      |      | X*    |       | 2500* X*       |      |            |      |      |      |      |      |       |  |
| 1 1/2"                      | 1"     | AK         | AH   | X*    |      |      |      | X*    |       |                |      |            |      |      |      |      |      |       |  |
| 1 1/4"                      | 1 1/4" | AL         | AL   | 2000  |      |      |      | 2000  |       | 2000           |      | X          |      | X    |      | X/-  |      |       |  |
| 1 1/2"                      | 1 1/4" | AP         | AM   | 2000* |      |      |      | 2000* |       |                |      |            |      |      |      |      |      |       |  |
| 1 1/2"                      | 1 1/2" | AR         | AR   |       |      |      |      | X     |       | X              |      |            |      |      |      |      |      |       |  |
| <b>Split Flange Porting</b> |        |            |      |       |      |      |      |       |       |                |      |            |      |      |      |      |      |       |  |
| 3/4"                        | -      | UC         | UD   | X     | X    | X    | X    |       |       |                |      |            |      |      |      |      |      |       |  |
| -                           | 3/4"   | UD         | UC   | X     | X    | X    | X    |       |       |                |      |            |      |      |      |      |      |       |  |
| 1"                          | 3/4"   | UJ         | UG   | X     | X    | X    | X    | X     |       | X              |      | X          |      |      |      |      |      |       |  |
| 1"                          | -      | OC         | OD   | X     |      |      |      | X     |       | X              |      |            |      |      |      |      |      |       |  |
| -                           | 1"     | OD         | OC   | X     |      |      |      | X     |       | X              |      |            |      |      |      |      |      |       |  |
| 1"                          | 1"     | OF         | OF   | X     |      |      |      | X     |       | X              |      | X          |      | X    |      | X    |      |       |  |
| 1 1/4"                      | 1"     | OJ         | OG   | 2000* |      |      |      | X     |       | X              |      | X          |      | X    |      | X    |      |       |  |
| 1 1/2"                      | 1"     | OK         | OH   | X*    |      |      |      | X*    |       | X*             |      | X          |      | X    |      | X*   |      |       |  |
| 1 1/4"                      | -      | OA         | OB   | X     |      |      |      | X     |       | X              |      | X          |      | X    |      | X    |      |       |  |
| -                           | 1 1/4" | OB         | OA   | X     |      |      |      | X     |       | X              |      | X          |      | X    |      | X    |      |       |  |
| 1 1/4"                      | 1 1/4" | OL         | OL   | 2000  |      |      |      | X     |       | X              |      | X          |      | X    |      | X    |      |       |  |
| 1 1/2"                      | 1 1/4" | OP         | OM   | X*    |      |      |      | X*    |       | X*             |      | X          |      | X    |      | X    |      |       |  |
| 1 1/2"                      | -      | OE         | OU   |       |      |      |      | X     |       | X              |      | X          |      | X    |      | X    |      |       |  |
| -                           | 1 1/2" | OU         | OE   |       |      |      |      | X     |       | X              |      | X          |      | X    |      | X    |      |       |  |
| 1 1/2"                      | 1 1/2" | OR         | OR   | 2000  |      |      |      | 2000  |       | X              |      | X          |      | X    |      | X    |      |       |  |
| 2"                          | 1"     | UQ         | -    |       |      |      |      | X*    |       |                |      |            |      |      |      |      |      |       |  |
| 2"                          | 1 1/4" | OQ         | ON   |       |      |      |      | X*    |       | X*             |      | X*         |      | X*   |      | X*   |      |       |  |
| 2"                          | 1 1/2" | OV         | OS   | 2000* |      |      |      | X*    |       | X*             |      | X*         |      | X*   |      | X*   |      |       |  |
| 2"                          | 2"     | OX         | OX   |       |      |      |      | X     |       | X              |      | X          |      | X    |      | X    |      |       |  |
| 2 1/2"                      | 1 1/4" | US         | UN   |       |      |      |      | X*    |       |                |      |            |      |      |      |      |      |       |  |
| 2 1/2"                      | 1 1/2" | OW         | OT   |       |      |      |      | X*    |       | X*/X*          |      | X*/X*      |      | X*   |      | X*   |      |       |  |
| 2 1/2"                      | 2"     | OZ         | OY   |       |      |      |      | X*/X* |       | X*/X*          |      |            |      |      |      |      |      |       |  |

\* This porting is acceptable for low pressure inlet port only.

NOTES

1. NPT ports are not recommended for use at pressures in excess of 1500 PSI.
2. Shaded cells are acceptable for motor codes.
3. "X" Means both codes are available.
4. "2000" or "2500" indicates maximum pressure rating on port.



| <b>Gear Housing (6) continued</b>  |        |            |      |      |       |       |      |       |                |       |            |       |       |      |      |      |       |
|------------------------------------|--------|------------|------|------|-------|-------|------|-------|----------------|-------|------------|-------|-------|------|------|------|-------|
|                                    |        | 075 Series |      |      |       |       |      |       | 075/076 Series |       | 076 Series |       |       |      |      |      |       |
| Housing Code                       | 07     | 10         | 12   | 15   | 17    | 20    | 22   | 25    | 27             | 30    | 10         | 12    | 15    | 17   | 20   | 22   | 25    |
| Displacement (C.I.R.)              | 3.07   | 4.1        | 5.12 | 6.15 | 7.17  | 8.2   | 9.22 | 10.25 | 11.275         | 12.3  | 4.1        | 5.12  | 6.15  | 7.17 | 8.2  | 9.22 | 10.25 |
| Maximum (PSI)                      | 2500   | 2500       | 2500 | 2500 | 2500  | 2500  | 2250 | 2250  | 2000           | 2000  | 3000       | 3000  | 3000  | 3000 | 2500 | 2500 | 2500  |
| IN                                 | OUT    | CW         | CCW  |      |       |       |      |       |                |       |            |       |       |      |      |      |       |
| 3/4"                               | -      | YN         | YQ   | X    | X     | X     | X    |       |                |       | X          | X     | X     |      |      |      |       |
| -                                  | 3/4"   | YQ         | YN   | X    | X     | X     | X    |       |                |       | X          | X     | X     |      |      |      |       |
| 3/4"                               | 3/4"   | YS         | YS   |      |       |       |      |       |                |       |            |       |       |      |      |      |       |
| 1"                                 | 3/4"   | YV         | YT   | X*   | X*    | X     | X    |       |                |       | X*         | X*    | X     |      | X    |      |       |
| 1"                                 | -      | SL         | RQ   |      | X     | X     | X    | X     |                |       | X*         | X*    | X     |      |      | X    |       |
| -                                  | 1"     | RQ         | SL   |      | X     | X     | X    | X     |                |       |            |       | X     |      |      | X    |       |
| 1"                                 | 1"     | MP         | MP   |      | 2000  | X     | X    |       |                |       |            |       | 2500  | X    | X    |      |       |
| 1 1/4"                             | 1"     | IX         | VY   |      | 2000* | X*    | X*   |       |                | X/-   |            |       | 2500* | X*   |      | X*   |       |
| 1 1/4"                             | -      | NJ         | UI   |      |       | X*    |      |       |                |       |            |       |       |      |      |      | X     |
| -                                  | 1 1/4" | UI         | NJ   |      |       |       |      |       |                |       |            |       |       |      |      |      | X     |
| 1 1/4"                             | 1 1/4" | PF         | PF   |      | 2000  | 2000  | X    | X     |                | -/X   |            |       |       |      | X    | X    |       |
| 1 1/2"                             | 1"     | VI         | HW   |      |       | X*    | X*   | X*    |                |       |            |       | X*    |      |      |      |       |
| 1 1/2"                             | 1 1/4" | IS         | IQ   |      | 2000* | 2000* | X*   |       |                |       |            |       |       |      |      |      | X*    |
| <b>Metric Straight Thread</b>      |        |            |      |      |       |       |      |       |                |       |            |       |       |      |      |      |       |
| 3/4"                               | -      | EN         | TQ   | X    | X     | X     | X    |       |                |       | X          | X     | X     |      |      |      |       |
| -                                  | 3/4"   | TQ         | EN   | X    | X     | X     | X    |       |                |       | X          | X     | X     |      |      |      |       |
| 1"                                 | 3/4"   | EV         | ET   | X*   |       | X     | X    |       |                |       |            | X*    | X     |      |      |      |       |
| 1"                                 | -      | NL         | ER   |      |       |       |      |       |                |       |            | X*    | X     |      |      |      |       |
| -                                  | 1"     | ER         | NL   |      |       | X     | X    |       |                |       |            | 2500  | X     |      |      |      |       |
| 1"                                 | 1"     | CM         | CM   |      | 2000  | X     | X    |       |                |       |            | 2500  | X     |      |      |      |       |
| <b>Metric Split Flange Porting</b> |        |            |      |      |       |       |      |       |                |       |            |       |       |      |      |      |       |
| 3/4"                               | -      | VN         | VQ   | X    | X     | X     | X    |       |                |       |            |       |       |      |      |      |       |
| -                                  | 3/4"   | VQ         | VN   | X    | X     | X     | X    |       |                |       |            |       |       |      |      |      |       |
| 1"                                 | 3/4"   | RV         | VT   | X    | X     | X     | X    | X     | X              |       | X          |       |       |      |      |      |       |
| 1"                                 | -      | UL         | UR   |      | X     | X     | X    | X     | X              |       |            |       |       |      |      |      |       |
| -                                  | 1"     | UR         | UL   |      | X     | X     | X    | X     | X              |       |            |       |       |      |      |      |       |
| 1"                                 | 1"     | UM         | UM   |      | X     | X     | X    | X     | X              |       | X          | X     | X     | X    |      |      |       |
| 1 1/4"                             | 1"     | UX         | VU   |      | X*    | X     | X    | X     | X              | X     | X*         | X*    |       |      |      |      |       |
| 1 1/2"                             | 1"     | VO         | HO   |      |       | X*    | X*   |       |                |       |            | X*    | X*    |      |      |      |       |
| 1 1/4"                             | -      | NO         | UO   |      |       | X     | X    | X     | X              | X     |            |       |       |      |      |      |       |
| -                                  | 1 1/4" | UO         | NO   |      |       | X     | X    | X     | X              | X     |            |       |       |      |      |      |       |
| 1 1/4"                             | 1 1/4" | PO         | PO   |      |       | X     | X    | X     | X              | X/X   | X/X        | 2500  | X     | X    | X    | X    |       |
| 1 1/2"                             | 1 1/4" | SO         | QO   |      |       | X*    | X*   | X     | X              | X     | X          | 2500* | X*    | X*   |      |      |       |
| 1 1/2"                             | -      | UY         | TO   |      |       |       |      | X     | X              | X     | X          | X     |       | X*   | X    |      |       |
| -                                  | 1 1/2" | TO         | UY   |      |       |       |      | X     | X              | X     | X          | X     |       |      | X    |      |       |
| 1 1/2"                             | 1 1/2" | SV         | SV   |      |       | 2000  | X    | X     | X              | X/X*  | X/X*       |       |       |      | X    | X    |       |
| 2"                                 | 1 1/4" | JM         | JR   |      |       | X*    | X*   | X*    | X*             | -/X*  | -/X*       |       |       | X*   | X*   | X*   |       |
| 2"                                 | 1 1/2" | JQ         | JN   |      |       | 2000* | X*   | X*    | X*             | X/X   | X/X        |       |       |      | X*   | X*   |       |
| 2"                                 | 2"     | JS         | JS   |      |       |       |      |       |                | -/X   | X/X        |       |       |      |      |      |       |
| 2 1/2"                             | 1 1/2" | LJ         | JX   |      |       |       |      |       |                | X*/X* | X*/X*      |       |       |      |      |      | X*    |

\* This porting is acceptable for low pressure inlet port only.

**NOTES**

1. Shaded cells are acceptable for motor codes.
2. "X" Means both codes are available.
3. "2000" or "2500" indicates maximum pressure rating on port.



**Box 7 Gear Width**

**075 Series**

|           | <b>Gear Width</b> | <b>in.<sup>3</sup>/rev.</b> | <b>cm<sup>3</sup>/rev.</b> | <b>Max Pressure</b> |
|-----------|-------------------|-----------------------------|----------------------------|---------------------|
| <b>07</b> | ¾"                | 3.08                        | 50.4                       | 2500 psi (172 bar)  |
| <b>10</b> | 1"                | 4.10                        | 67.2                       | 2500 psi (172 bar)  |
| <b>12</b> | 1 ¼"              | 5.13                        | 84.0                       | 2500 psi (172 bar)  |
| <b>15</b> | 1 ½"              | 6.15                        | 100.8                      | 2500 psi (172 bar)  |
| <b>17</b> | 1 ¾"              | 7.18                        | 117.6                      | 2500 psi (172 bar)  |
| <b>20</b> | 2"                | 8.20                        | 134.4                      | 2500 psi (172 bar)  |
| <b>22</b> | 2 ¼"              | 9.23                        | 151.2                      | 2250 psi (155 bar)  |
| <b>25</b> | 2 ½"              | 10.25                       | 168.0                      | 2250 psi (155 bar)  |
| <b>27</b> | 2 ¾"              | 11.28                       | 184.8                      | 2000 psi (138 bar)  |
| <b>30</b> | 3"                | 12.30                       | 201.6                      | 2000 psi (138 bar)  |

**076 Series**

|           | <b>Gear Width</b> | <b>in.<sup>3</sup>/rev.</b> | <b>cm<sup>3</sup>/rev.</b> | <b>Max Pressure</b> |
|-----------|-------------------|-----------------------------|----------------------------|---------------------|
| <b>07</b> | ¾"                | 3.08                        | 50.4                       | 3000 psi (207 bar)  |
| <b>10</b> | 1"                | 4.10                        | 67.2                       | 3000 psi (207 bar)  |
| <b>12</b> | 1 ¼"              | 5.13                        | 84.0                       | 3000 psi (207 bar)  |
| <b>15</b> | 1 ½"              | 6.15                        | 100.8                      | 3000 psi (207 bar)  |
| <b>17</b> | 1 ¾"              | 7.18                        | 117.6                      | 3000 psi (207 bar)  |
| <b>20</b> | 2"                | 8.20                        | 134.4                      | 2500 psi (172 bar)  |
| <b>22</b> | 2 ¼"              | 9.23                        | 151.2                      | 2500 psi (172 bar)  |
| <b>25</b> | 2 ½"              | 10.25                       | 168.0                      | 2500 psi (172 bar)  |
| <b>27</b> | 2 ¾"              | 11.28                       | 184.8                      | 2000 psi (138 bar)  |
| <b>30</b> | 3"                | 12.30                       | 201.6                      | 2000 psi (138 bar)  |

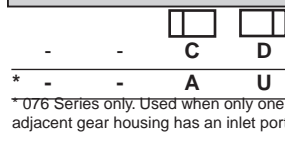
**Box 8 Shaft Type**

**For single, tandem, or two-piece shaft unless noted.**

- 07** SAE "C" 14 tooth spline 1.25" dia., ANSI 32-4
- 11** SAE "C" keyed 1.25" dia., 5/16"X15/32"X1 ½" key, ANSI 32-1

**Box 9 Bearing Carriers (Pump Only)**

**Common Inlet Passage**

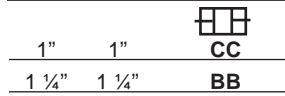


**Box 9 Bearing Carriers (Motor Only)**

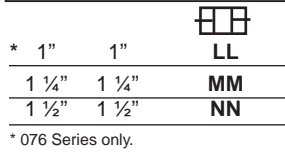
**No Ports**



**ODT Porting**

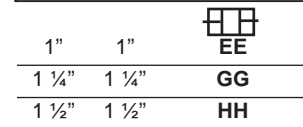


**Split Flange Porting**

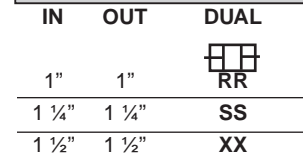


\* 076 Series only.

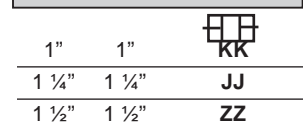
**BSPP Porting**



**Metric Split Flange Porting**



**Metric Straight Thread Porting**



**Box 10 Connecting Shaft**

For connecting tandem units.

- 1** Connecting Shaft - Multiple Units
- 23** Piggyback Pump Connecting Shaft for 075 to 075

**NOTE**

Split flange thread depths may be more shallow than S.A.E. standard. Contact Product Support Department for actual dimensions.



**Performance Data**

Performance data shown are the average results based on a series of laboratory tests of production units and are not necessarily representative of any one unit. Tests were run with the oil reservoir temperature at 120°F

and viscosity 150 SSU at 100°F. Requests for more specific data should be directed to our Product Support Department through our sales representatives.

**PGP030/031**

Flow data at 2500 PSI (172 bar) unless noted.

| Speed<br>RPM | Gear Width Output (gpm/lpm) |      |      |      |      |
|--------------|-----------------------------|------|------|------|------|
|              | 1"                          | 1 ¼" | 1 ½" | 1 ¾" | 2"   |
| 900          | 6.5                         | 8    | 10   | 12   | 13.5 |
|              | 24.5                        | 30   | 38   | 45.5 | 51   |
| 1200         | 9                           | 11.5 | 14   | 16   | 18.5 |
|              | 34                          | 43.5 | 53   | 60.5 | 70   |
| 1500         | 11.5                        | 14.5 | 17.5 | 20.5 | 23.5 |
|              | 43.5                        | 55   | 66   | 77.5 | 89   |
| 1800         | 14                          | 18   | 21.5 | 25   | 29   |
|              | 53                          | 68   | 81.5 | 94.5 | 110  |
| 2100         | 16.5                        | 21   | 25   | 29.5 | 34   |
|              | 62.5                        | 79.5 | 94.5 | 112  | 129  |
| 2400         | 19                          | 24   | 29   | 34   | 39   |
|              | 72                          | 91   | 110  | 129  | 148  |



**PGP050/051**

Flow data at 2500 PSI (172 bar) unless noted.

| Speed<br>RPM | Gear Width Output (gpm/lpm) |      |      |      |      |      |      |
|--------------|-----------------------------|------|------|------|------|------|------|
|              | 1"                          | 1 ¼" | 1 ½" | 1 ¾" | 2"   | 2 ¼" | 2 ½" |
| 900          | 8.5                         | 10.5 | 13   | 15   | 17.5 | 20   | 22   |
|              | 32                          | 39.5 | 49   | 57   | 66   | 75.5 | 83.5 |
| 1200         | 12                          | 15   | 18   | 21   | 24   | 27   | 30   |
|              | 45.5                        | 57   | 68   | 79.5 | 91   | 102  | 114  |
| 1500         | 15                          | 19   | 23   | 27   | 31   | 35   | 39   |
|              | 57                          | 72   | 87   | 102  | 117  | 132  | 148  |
| 1800         | 18                          | 23   | 27.5 | 32.5 | 37.5 | 42   | 47   |
|              | 68                          | 87   | 104  | 123  | 142  | 159  | 178  |
| 2100         | 21.5                        | 27   | 32.5 | 38.5 | 44   | 49.5 | 55   |
|              | 81.5                        | 102  | 123  | 146  | 167  | 187  | 208  |
| 2400         | 25                          | 31   | 37   | 44   | 51   | 57   | 63.5 |
|              | 94.5                        | 117  | 140  | 167  | 193  | 216  | 240  |

**PGP075/076**

Flow data at 2500 PSI (172 bar) unless noted.

| Speed<br>RPM | Gear Width Output (gpm/lpm) |      |      |      |      |       |       |       |     |
|--------------|-----------------------------|------|------|------|------|-------|-------|-------|-----|
|              | 1"                          | 1 ¼" | 1 ½" | 1 ¾" | 2"   | 2 ¼"  | 2 ½"  | 2 ¾"* | 3"* |
| 900          | 11.5                        | 15.5 | 19.5 | 23   | 27   | 30.5  | 34.5  | 38    | 42  |
|              | 43.5                        | 58.5 | 74   | 87   | 102  | 115.5 | 130.5 | 144   | 159 |
| 1200         | 17                          | 22   | 27   | 32   | 37.5 | 42    | 48    | 52.5  | 58  |
|              | 64.5                        | 83.5 | 102  | 121  | 142  | 159   | 182   | 199   | 220 |
| 1500         | 22                          | 29   | 35.5 | 41.5 | 48   | 54.5  | 61    | 67    | 74  |
|              | 83.5                        | 110  | 134  | 157  | 182  | 206   | 231   | 254   | 280 |
| 1800         | 27.5                        | 35.5 | 43.5 | 51   | 59   | 66    | 74    | 81.5  | 90  |
|              | 104                         | 134  | 165  | 193  | 223  | 250   | 280   | 308   | 341 |
| 2100         | 33                          | 42   | 51.5 | 60   | 69.5 | 78    | 87    | 96.5  | 106 |
|              | 125                         | 159  | 195  | 227  | 263  | 295   | 329   | 365   | 401 |
| 2400         | 38                          | 49   | 59.5 | 70   | 80   | 90    | 101   | 111   | 122 |
|              | 144                         | 185  | 225  | 265  | 303  | 341   | 382   | 420   | 462 |

\*Flow data at 2000 PSI (138 bar) rated pressure.



**PL FACTOR**

Each section of a multiple pump or motor should be regarded as a single unit with corresponding delivery and power input requirements. Since the entire input horsepower is fed through a common drive shaft, the power delivered to or from the unit is limited by the physical strength of the shaft. This limit is defined as a

“PL” factor; “P” being the operating pressure and “L” the summation of gear widths.

In multiple units the “PL” must be calculated for the first connecting shaft as well as the drive shaft. Each style or type of shaft has a unique “PL” factor as noted in the table below.

**PGP030/031**

Input power at 2500 PSI (172 bar) unless noted.

| Speed<br>RPM | Gear Width Inches (HP/kW) |      |      |      |    |
|--------------|---------------------------|------|------|------|----|
|              | 1”                        | 1 ¼” | 1 ½” | 1 ¾” | 2” |
| 900          | 14                        | 17   | 20   | 23   | 25 |
|              | 11                        | 13   | 15   | 17   | 19 |
| 1200         | 19                        | 22   | 26   | 30   | 33 |
|              | 14                        | 17   | 20   | 22   | 25 |
| 1500         | 23                        | 28   | 33   | 37   | 42 |
|              | 17                        | 21   | 24   | 27   | 31 |
| 1800         | 27                        | 33   | 39   | 44   | 50 |
|              | 20                        | 25   | 29   | 33   | 37 |
| 2100         | 32                        | 38   | 45   | 51   | 58 |
|              | 24                        | 29   | 34   | 38   | 43 |
| 2400         | 36                        | 44   | 51   | 58   | 66 |
|              | 26                        | 33   | 38   | 43   | 49 |

Pressure X Total Gear Width = PL  
PL MUST NOT EXCEED NUMBER  
SHOWN FOR APPROPRIATE SHAFT.

| PL Chart         |                       |                 |
|------------------|-----------------------|-----------------|
| Shaft Style      | Integral Shaft & Gear | Two Piece Style |
| <b>030/031</b>   |                       |                 |
| SAE “A” Spline   | 2,600                 | 2,600           |
| SAE “B” Spline   | 7,900                 | 5,850           |
| SAE “B” Key      | 4,850                 | 4,850           |
| SAE “BB” Spline  | 12,150                | --              |
| SAE “BB” Key     | 7,250                 | 5,850           |
| SAE “C” Spline   | --                    | 5,850           |
| Connecting Shaft | --                    | 5,850           |
| <b>050/051</b>   |                       |                 |
| SAE “B” Spline   | 6,100                 | 6,100           |
| SAE “B-B” Spline | 9,400                 | --              |
| SAE “B-B” Key    | 5,600                 | 5,600           |
| SAE “C” Spline   | 12,900                | 8,500           |
| SAE “C” Key      | 10,900                | 8,500           |
| Connecting Shaft | --                    | 8,500           |
| <b>075/076</b>   |                       |                 |
| SAE “C” Single   | 8,000                 | 8,000           |
| SAE “C” Tandem   | 12,500                | --              |
| SAE “C” Key      | 7,500                 | 7,500           |
| Connecting Shaft | --                    | 10,000          |

**PGP050/051**

Input power at 2500 PSI (172 bar) unless noted.

| Speed<br>RPM | Gear Width Inches (HP/kW) |      |      |      |    |      |      |
|--------------|---------------------------|------|------|------|----|------|------|
|              | 1”                        | 1 ¼” | 1 ½” | 1 ¾” | 2” | 2 ¼” | 2 ½” |
| 900          | 19                        | 22   | 26   | 30   | 34 | 38   | 42   |
|              | 14                        | 17   | 20   | 23   | 26 | 29   | 32   |
| 1200         | 25                        | 30   | 34   | 40   | 45 | 51   | 56   |
|              | 18                        | 22   | 26   | 30   | 34 | 38   | 42   |
| 1500         | 31                        | 37   | 43   | 50   | 56 | 63   | 69   |
|              | 23                        | 27   | 32   | 37   | 42 | 47   | 51   |
| 1800         | 36                        | 44   | 51   | 59   | 67 | 75   | 82   |
|              | 27                        | 33   | 38   | 44   | 50 | 56   | 61   |
| 2100         | 42                        | 51   | 60   | 69   | 78 | 87   | 96   |
|              | 31                        | 38   | 44   | 51   | 58 | 65   | 72   |
| 2400         | 47                        | 57   | 68   | 79   | 89 | 99   | 110  |
|              | 35                        | 43   | 51   | 59   | 66 | 74   | 82   |

**PGP075/076**

Input power at 2500 PSI (172 bar) unless noted.

| Speed<br>RPM | Gear Width Inches (HP/kW) |      |      |      |     |      |      |       |     |
|--------------|---------------------------|------|------|------|-----|------|------|-------|-----|
|              | 1”                        | 1 ¼” | 1 ½” | 1 ¾” | 2”  | 2 ¼” | 2 ½” | 2 ¾”* | 3”* |
| 900          | 26                        | 32   | 39   | 45   | 51  | 58   | 64   | 57    | 62  |
|              | 19                        | 24   | 29   | 34   | 38  | 43   | 48   | 42    | 46  |
| 1200         | 35                        | 43   | 52   | 60   | 69  | 78   | 86   | 76    | 83  |
|              | 26                        | 32   | 39   | 45   | 51  | 58   | 64   | 57    | 62  |
| 1500         | 44                        | 55   | 65   | 76   | 87  | 98   | 109  | 96    | 105 |
|              | 33                        | 41   | 49   | 57   | 65  | 73   | 81   | 72    | 78  |
| 1800         | 53                        | 66   | 79   | 93   | 106 | 119  | 132  | 116   | 127 |
|              | 39                        | 49   | 59   | 69   | 79  | 89   | 99   | 87    | 95  |
| 2100         | 62                        | 77   | 93   | 108  | 124 | 139  | 154  | 136   | 148 |
|              | 46                        | 58   | 69   | 81   | 92  | 104  | 115  | 101   | 111 |
| 2400         | 71                        | 88   | 106  | 124  | 141 | 159  | 176  | 155   | 169 |
|              | 53                        | 66   | 79   | 92   | 105 | 118  | 132  | 116   | 126 |

\*Input power at 2000 PSI (138 bar).

**PGM030**

Motor performance data at 2000 PSI (138 bar).

| Speed<br>RPM | 1" Gear |       |       | 1 1/2" Gear |       |       | 2" Gear |       |       |
|--------------|---------|-------|-------|-------------|-------|-------|---------|-------|-------|
|              | Output  |       | Input | Output      |       | Input | Output  |       | Input |
|              | Torque  | Power | Flow  | Torque      | Power | Flow  | Torque  | Power | Flow  |
| 800          | 550     | 7     | 9     | 870         | 11    | 13    | 1150    | 14.5  | 17    |
|              | 62      | 5     | 34    | 98.5        | 8     | 49    | 130     | 11    | 64.5  |
| 1200         | 550     | 10.5  | 13    | 870         | 16.5  | 18    | 1150    | 22    | 23.5  |
|              | 62      | 8     | 49    | 98.5        | 12.5  | 68    | 130     | 16.5  | 89    |
| 1600         | 550     | 14    | 16    | 860         | 22    | 23    | 1140    | 29    | 30.5  |
|              | 62      | 10.5  | 60.5  | 97          | 16.5  | 87    | 129     | 21.5  | 115   |
| 2000         | 550     | 17.5  | 19.5  | 850         | 27    | 28    | 1125    | 36    | 37    |
|              | 62      | 13    | 74    | 96          | 20    | 106   | 127     | 27    | 140   |

*U.S./Metric* Torque: In.-lbs. Flow: GPM Power: HP  
 Nm LPM kW

**PGM050**

Motor performance data at 2000 PSI (138 bar).

| Speed<br>RPM | 1" Gear |       |       | 1 1/2" Gear |       |       | 2" Gear |       |       | 2 1/2" Gear |       |       |
|--------------|---------|-------|-------|-------------|-------|-------|---------|-------|-------|-------------|-------|-------|
|              | Output  |       | Input | Output      |       | Input | Output  |       | Input | Output      |       | Input |
|              | Torque  | Power | Flow  | Torque      | Power | Flow  | Torque  | Power | Flow  | Torque      | Power | Flow  |
| 800          | 670     | 8.5   | 10.5  | 1070        | 13.5  | 15.5  | 1450    | 18    | 21    | 1850        | 23.5  | 26    |
|              | 75.5    | 6.5   | 39.5  | 121         | 10    | 58.5  | 164     | 13.5  | 79.5  | 209         | 17.5  | 98.5  |
| 1200         | 680     | 13    | 15.5  | 1075        | 20.5  | 22.5  | 1450    | 27.5  | 30.5  | 1840        | 35    | 37.5  |
|              | 77      | 9.5   | 58.5  | 121.5       | 15    | 85    | 164     | 20.5  | 115   | 208         | 26    | 142   |
| 1600         | 670     | 17    | 20    | 1045        | 26.5  | 30    | 1440    | 36.5  | 40    | 1750        | 44.5  | 49.5  |
|              | 75.5    | 12.5  | 75.5  | 118         | 20    | 114   | 162.5   | 27    | 151   | 197.5       | 33    | 187   |
| 2000         | 660     | 21    | 25    | 1030        | 32.5  | 37    | 1415    | 44.5  | 49    | 1720        | 54.5  | 61.5  |
|              | 74.5    | 15.5  | 94.5  | 116.5       | 24    | 140   | 160     | 33    | 185   | 194.5       | 40.5  | 233   |

*U.S./Metric* Torque: In.-lbs. Flow: GPM Power: HP  
 Nm LPM kW

**PGM075**

Motor performance data at 2000 PSI (138 bar).

| Speed<br>RPM | 1" Gear |       |       | 1 1/2" Gear |       |       | 2" Gear |       |       | 2 1/2" Gear |       |       | 3" Gear |       |       |
|--------------|---------|-------|-------|-------------|-------|-------|---------|-------|-------|-------------|-------|-------|---------|-------|-------|
|              | Output  |       | Input | Output      |       | Input | Output  |       | Input | Output      |       | Input | Output  |       | Input |
|              | Torque  | Power | Flow  | Torque      | Power | Flow  | Torque  | Power | Flow  | Torque      | Power | Flow  | Torque  | Power | Flow  |
| 800          | 1050    | 13.5  | 20.5  | 1650        | 21    | 28    | 2200    | 28    | 35.5  | 2875        | 36.5  | 43    | 3625    | 46    | 50.5  |
|              | 118.5   | 10    | 77.5  | 186.5       | 15.5  | 106   | 248.5   | 21    | 134   | 325         | 27    | 163   | 409.5   | 34.5  | 191   |
| 1200         | 1025    | 19.5  | 27.5  | 1600        | 30.5  | 38    | 2200    | 42    | 49.5  | 2850        | 54    | 60.5  | 3575    | 68    | 72    |
|              | 116     | 14.5  | 104   | 181         | 22.5  | 144   | 248.5   | 31.5  | 187   | 322         | 40.5  | 229   | 404     | 50.5  | 273   |
| 1600         | 1000    | 25.5  | 34    | 1575        | 40    | 49    | 2175    | 55    | 64    | 2800        | 71    | 78.5  | 3500    | 89    | 93    |
|              | 113     | 19    | 129   | 178         | 30    | 185   | 245.5   | 41    | 242   | 316.5       | 53    | 297   | 395.5   | 66.5  | 352   |
| 2000         | 950     | 30    | 41.5  | 1550        | 49    | 59    | 2175    | 67.5  | 78    | 2750        | 87    | 96.5  | 3425    | 109   | 114   |
|              | 107.5   | 22.5  | 157   | 175         | 36.5  | 223   | 245.5   | 50.5  | 295   | 310.5       | 65    | 365   | 387     | 81.5  | 431   |

*U.S./Metric* Torque: In.-lbs. Flow: GPM Power: HP  
 Nm LPM kW

**PGM031**

Motor performance data at 2500 PSI (172 bar).

| Speed<br>RPM | 1" Gear |       |       | 1 1/2" Gear |       |       | 2" Gear |       |       |
|--------------|---------|-------|-------|-------------|-------|-------|---------|-------|-------|
|              | Output  |       | Input | Output      |       | Input | Output  |       | Input |
|              | Torque  | Power | Flow  | Torque      | Power | Flow  | Torque  | Power | Flow  |
| 800          | 675     | 8.5   | 9     | 1035        | 13    | 13    | 1385    | 17.5  | 17    |
|              | 76.5    | 6.5   | 34    | 117         | 9.5   | 49    | 156.5   | 13    | 64.5  |
| 1200         | 685     | 13    | 13    | 1055        | 20    | 18    | 1410    | 27    | 23.5  |
|              | 77.5    | 9.5   | 49    | 119         | 15    | 68    | 159.5   | 20    | 89    |
| 1600         | 680     | 17.5  | 16    | 1030        | 26    | 23    | 1390    | 35    | 30.5  |
|              | 77      | 13    | 60.5  | 116.5       | 19.5  | 87    | 157     | 26    | 115   |
| 2000         | 660     | 21    | 19.5  | 1010        | 32    | 28    | 1370    | 43.5  | 37    |
|              | 74.5    | 15.5  | 74    | 114         | 24    | 106   | 155     | 32.5  | 140   |

U.S./Metric Torque: In.-lbs. Flow: GPM Power: HP  
 Nm LPM kW

**PGM051**

Motor performance data at 2500 PSI (172 bar).

| Speed<br>RPM | 1" Gear |       |       | 1 1/2" Gear |       |       | 2" Gear |       |       | 2 1/2" Gear |       |       |
|--------------|---------|-------|-------|-------------|-------|-------|---------|-------|-------|-------------|-------|-------|
|              | Output  |       | Input | Output      |       | Input | Output  |       | Input | Output      |       | Input |
|              | Torque  | Power | Flow  | Torque      | Power | Flow  | Torque  | Power | Flow  | Torque      | Power | Flow  |
| 800          | 825     | 10.5  | 10.5  | 1310        | 16.5  | 15.5  | 1810    | 23    | 21    | 2330        | 29.5  | 26    |
|              | 93      | 8     | 39.5  | 148         | 12.5  | 58.5  | 204.5   | 17    | 79.5  | 263.5       | 22    | 98.5  |
| 1200         | 850     | 16    | 15.5  | 1340        | 25.5  | 22.5  | 1830    | 35    | 30.5  | 2340        | 44.5  | 37.5  |
|              | 96      | 12    | 58.5  | 151.5       | 19    | 85    | 207     | 26    | 115   | 264.5       | 33    | 142   |
| 1600         | 830     | 21    | 20    | 1330        | 34    | 30    | 1805    | 46    | 40    | 2300        | 58.5  | 49.5  |
|              | 94      | 15.5  | 75.5  | 150.5       | 25.5  | 114   | 204     | 34.5  | 151   | 260         | 43.5  | 187   |
| 2000         | 800     | 25.5  | 25    | 1290        | 41    | 37    | 1770    | 56    | 49    | 2250        | 71.5  | 61.5  |
|              | 90.5    | 19    | 94.5  | 146         | 30.5  | 140   | 200     | 42    | 185   | 254         | 53.5  | 233   |

U.S./Metric Torque: In.-lbs. Flow: GPM Power: HP  
 Nm LPM kW

**PGM076**

Motor performance data at 2500 PSI (172 bar) unless noted.

| Speed<br>RPM | 1" Gear |       |       | 1 1/2" Gear |       |       | 2" Gear |       |       | 2 1/2" Gear |       |       | 3" Gear* |       |       |
|--------------|---------|-------|-------|-------------|-------|-------|---------|-------|-------|-------------|-------|-------|----------|-------|-------|
|              | Output  |       | Input | Output      |       | Input | Output  |       | Input | Output      |       | Input | Output   |       | Input |
|              | Torque  | Power | Flow  | Torque      | Power | Flow  | Torque  | Power | Flow  | Torque      | Power | Flow  | Torque   | Power | Flow  |
| 800          | 1410    | 18    | 20.5  | 2140        | 27    | 28    | 2875    | 36.5  | 35.5  | 3650        | 46.5  | 43    | 3625     | 46    | 50.5  |
|              | 159.5   | 13.5  | 77.5  | 242         | 20    | 106   | 325     | 27    | 134   | 412.5       | 34.6  | 163   | 409.5    | 34.5  | 191   |
| 1200         | 1400    | 26.5  | 27.5  | 2140        | 41    | 38    | 2870    | 54.5  | 49.5  | 3650        | 69.5  | 60.5  | 3575     | 68    | 72    |
|              | 158     | 20    | 104   | 242         | 30.5  | 144   | 324.5   | 40.5  | 187   | 412.5       | 52    | 229   | 404      | 50.5  | 273   |
| 1600         | 1375    | 35    | 34    | 2110        | 53.5  | 49    | 2830    | 72    | 64    | 3600        | 91.5  | 78.5  | 3500     | 89    | 93    |
|              | 155.5   | 26    | 129   | 238.5       | 40    | 185   | 319.5   | 53.5  | 242   | 406.5       | 68    | 297   | 395.5    | 66.5  | 352   |
| 2000         | 1350    | 43    | 41.5  | 2090        | 66.5  | 59    | 2800    | 89    | 78    | 3500        | 111   | 96.5  | 3425     | 109   | 114   |
|              | 152.5   | 32    | 157   | 236         | 49.5  | 223   | 316.5   | 66.5  | 295   | 395.5       | 83    | 365   | 387      | 81.5  | 431   |

U.S./Metric Torque: In.-lbs. Flow: GPM Power: HP  
 Nm LPM kW

\*Motor performance data at 2000 PSI (138 bar).

**Pumps and Motors (see drawings on page 23)**

| Model   |     | A <sup>(1)</sup> | Bs <sup>(2)(3)</sup> | Bm <sup>(3)(4)</sup> | C <sup>(5)(6)</sup> | D <sup>(5)(7)</sup> | E <sup>(3)</sup> | F <sup>(2)</sup> | G           | H           | I           | J           | K           | L <sup>(3)(8)</sup> | M <sup>(4)</sup> |
|---------|-----|------------------|----------------------|----------------------|---------------------|---------------------|------------------|------------------|-------------|-------------|-------------|-------------|-------------|---------------------|------------------|
| 030/031 | in. | <b>1.62</b>      | <b>5.44</b>          | <b>8.69</b>          | <b>5.44</b>         | <b>5.88</b>         | <b>2.94</b>      | <b>0.75</b>      | <b>1.75</b> | <b>2.50</b> | <b>0.88</b> | <b>2.69</b> | <b>5.38</b> | <b>3.31</b>         | <b>3.25</b>      |
|         | mm. | 41.3             | 138.1                | 220.7                | 138.1               | 149.2               | 74.6             | 19.1             | 44.5        | 63.5        | 22.2        | 68.3        | 136.5       | 84.1                | 82.6             |
| 050/051 | in. | <b>2.19</b>      | <b>5.88</b>          | <b>9.50</b>          | <b>5.44</b>         | <b>5.88</b>         | <b>3.38</b>      | <b>0.75</b>      | <b>1.75</b> | <b>2.88</b> | <b>1.00</b> | <b>3.00</b> | <b>6.00</b> | <b>3.75</b>         | <b>3.62</b>      |
|         | mm. | 55.6             | 149.2                | 241.3                | 138.1               | 149.2               | 85.7             | 19.1             | 44.5        | 73.0        | 25.4        | 76.2        | 152.4       | 95.3                | 92.1             |
| 075/076 | in. | <b>2.19</b>      | <b>6.75</b>          | <b>10.75</b>         | <b>7.75</b>         | <b>7.94</b>         | <b>3.75</b>      | <b>1.00</b>      | <b>2.00</b> | <b>3.00</b> | <b>1.25</b> | <b>3.94</b> | <b>7.88</b> | <b>4.75</b>         | <b>4.00</b>      |
|         | mm. | 55.6             | 171.5                | 273.1                | 196.9               | 201.6               | 95.3             | 25.4             | 50.8        | 76.2        | 31.8        | 100.0       | 200.0       | 120.7               | 101.6            |

**U.S./Metric**

**NOTES**

1. Dimension will vary with shaft type
2. Dimension + gear width
3. Dimension is for Type 1 SEC. For Type 2: subtract 1.12" (28.4 mm) for 030/031; subtract 1.00" (25.4 mm) for 050/051.
4. Dimension + total gear width
5. Dimension will vary with port type. Subtract 0.25" (6.4 mm) for S.F. ports.
6. For 2.25" and 2.50" gear width in 050/051 series, dimension is 6.75" (171.5 mm).
7. Dimension is for wide B-C. Narrow B-C dimensions: 5.00" (127 mm) for 030/031 and 050/051; 7.19" (182.6 mm) for 075/076.
8. Dimension + ½ front section gear width

**Approximate Weight: Pumps and Motors**

**Single Unit**

| Model   | Unit Weight   | 1"        | 1 ¼"        | 1 ½"      | 1 ¾"        | 2"        | 2 ¼"        | 2 ½"      | 2 ¾"      | 3"        |
|---------|---------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-----------|-----------|
| 030/031 | <b>Pounds</b> | <b>33</b> | <b>34</b>   | <b>35</b> | <b>36</b>   | <b>37</b> | -           | -         | -         | -         |
|         | KG            | 15        | 15.5        | 16        | 16.5        | 17        | -           | -         | -         | -         |
| 050/051 | <b>Pounds</b> | <b>37</b> | <b>38.5</b> | <b>40</b> | <b>41.5</b> | <b>43</b> | <b>48.5</b> | <b>50</b> | -         | -         |
|         | KG            | 17        | 17.5        | 18        | 19          | 19.5      | 22          | 22.5      | -         | -         |
| 075/076 | <b>Pounds</b> | <b>72</b> | <b>75</b>   | <b>77</b> | <b>80</b>   | <b>82</b> | <b>85</b>   | <b>87</b> | <b>90</b> | <b>92</b> |
|         | KG            | 33        | 34          | 35        | 36          | 37        | 39          | 40        | 41        | 42        |

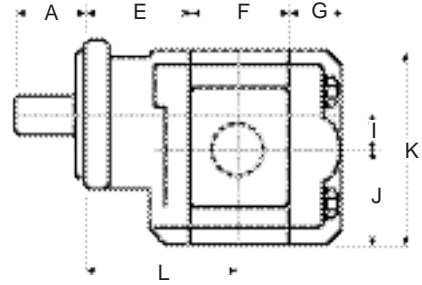
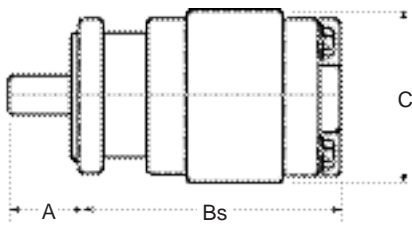
**Approximate Weight: Pumps and Motors**

**Multiple Unit\***

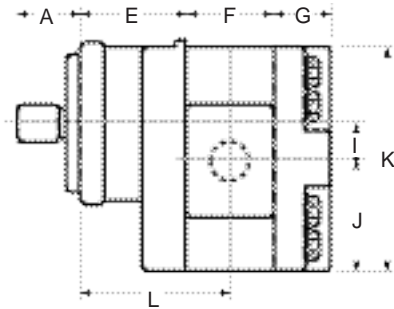
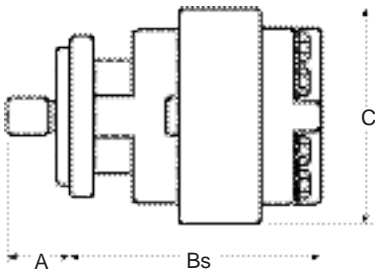
| Model   | Add per gear section | 1"        | 1 ¼"        | 1 ½"      | 1 ¾"        | 2"        | 2 ¼"        | 2 ½"      | 2 ¾"      | 3"        |
|---------|----------------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-----------|-----------|
| 030/031 | <b>Pounds</b>        | <b>27</b> | <b>28</b>   | <b>29</b> | <b>31</b>   | <b>32</b> | -           | -         | -         | -         |
|         | KG                   | 12        | 12.5        | 13        | 14          | 14.5      | -           | -         | -         | -         |
| 050/051 | <b>Pounds</b>        | <b>31</b> | <b>32.5</b> | <b>34</b> | <b>35.5</b> | <b>37</b> | <b>42.5</b> | <b>44</b> | -         | -         |
|         | KG                   | 14        | 15          | 15.5      | 16          | 17        | 19          | 20        | -         | -         |
| 075/076 | <b>Pounds</b>        | <b>59</b> | <b>62</b>   | <b>64</b> | <b>67</b>   | <b>69</b> | <b>72</b>   | <b>74</b> | <b>77</b> | <b>79</b> |
|         | KG                   | 27        | 28          | 29        | 31          | 32        | 33          | 34        | 35        | 36        |

\*Determine the approximate weight from Single Unit chart and add weight of each additional assembly from this chart.

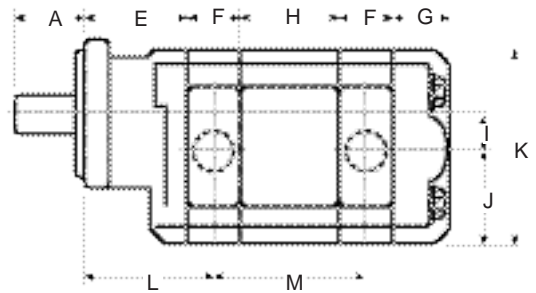
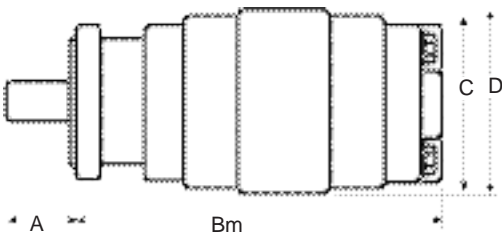
**Single Unit - 030/031/050/051**



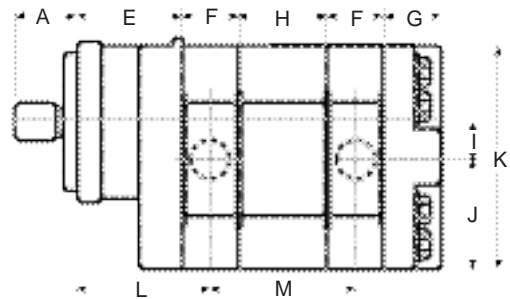
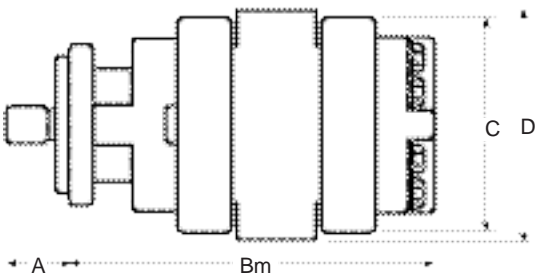
**Single Unit - 075/076**



**Multiple Unit - 030/031/050/051**



**Multiple Unit - 075/076**



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