

TOTAL SYSTEMS SOLUTIONS WORLDWIDE™

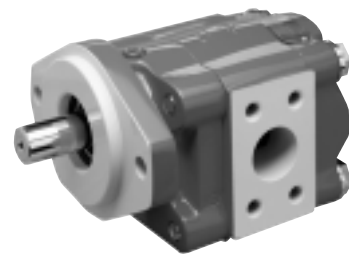


## **P30/31™, P50/ 51™, P75/76™ Series Single and Multiple Pumps and Motors**

*Pressure to 3000 PSI/175  
BAR*

*Output to 120 GPM/  
454 LPM*

*Motors up to 135 HP*



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# Average Output Flow - Pumps

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

## P30/31

| Speed<br>RPM | Gear Width Inches |             |             |             |             |
|--------------|-------------------|-------------|-------------|-------------|-------------|
|              | 1"                | 1 1/4"      | 1 1/2"      | 1 3/4"      | 2"          |
| 900          | <b>6.5</b>        | <b>8</b>    | <b>10</b>   | <b>12</b>   | <b>13.5</b> |
|              | 24.5              | 30          | 38          | 45.5        | 51          |
| 1200         | <b>9</b>          | <b>11.5</b> | <b>14</b>   | <b>16</b>   | <b>18.5</b> |
|              | 34                | 43.5        | 53          | 60.5        | 70          |
| 1500         | <b>11.5</b>       | <b>14.5</b> | <b>17.5</b> | <b>20.5</b> | <b>23.5</b> |
|              | 43.5              | 55          | 66          | 77.5        | 89          |
| 1800         | <b>14</b>         | <b>18</b>   | <b>21.5</b> | <b>25</b>   | <b>29</b>   |
|              | 53                | 68          | 81.5        | 94.5        | 110         |
| 2100         | <b>16.5</b>       | <b>21</b>   | <b>25</b>   | <b>29.5</b> | <b>34</b>   |
|              | 62.5              | 79.5        | 94.5        | 112         | 129         |
| 2400         | <b>19</b>         | <b>24</b>   | <b>29</b>   | <b>34</b>   | <b>39</b>   |
|              | 72                | 91          | 110         | 129         | 148         |

*gpm/lpm*

## P50/51

| Speed<br>RPM | Gear Width Inches |             |             |             |             |             |             |
|--------------|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|
|              | 1"                | 1 1/4"      | 1 1/2"      | 1 3/4"      | 2"          | 2 1/4"      | 2 1/2"      |
| 900          | <b>8.5</b>        | <b>10.5</b> | <b>13</b>   | <b>15</b>   | <b>17.5</b> | <b>20</b>   | <b>22</b>   |
|              | 32                | 39.5        | 49          | 57          | 66          | 75.5        | 83.5        |
| 1200         | <b>12</b>         | <b>15</b>   | <b>18</b>   | <b>21</b>   | <b>24</b>   | <b>27</b>   | <b>30</b>   |
|              | 45.5              | 57          | 68          | 79.5        | 91          | 102         | 114         |
| 1500         | <b>15</b>         | <b>19</b>   | <b>23</b>   | <b>27</b>   | <b>31</b>   | <b>35</b>   | <b>39</b>   |
|              | 57                | 72          | 87          | 102         | 117         | 132         | 148         |
| 1800         | <b>18</b>         | <b>23</b>   | <b>27.5</b> | <b>32.5</b> | <b>37.5</b> | <b>42</b>   | <b>47</b>   |
|              | 68                | 87          | 104         | 123         | 142         | 159         | 178         |
| 2100         | <b>21.5</b>       | <b>27</b>   | <b>32.5</b> | <b>38.5</b> | <b>44</b>   | <b>49.5</b> | <b>55</b>   |
|              | 81.5              | 102         | 123         | 146         | 167         | 187         | 208         |
| 2400         | <b>25</b>         | <b>31</b>   | <b>37</b>   | <b>44</b>   | <b>51</b>   | <b>57</b>   | <b>63.5</b> |
|              | 94.5              | 117         | 140         | 167         | 193         | 216         | 240         |

*gpm/lpm*

## P75/76

| Speed<br>RPM | Gear Width Inches |             |             |             |             |             |             |             |            |
|--------------|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|
|              | 1"                | 1 1/4"      | 1 1/2"      | 1 3/4"      | 2"          | 2 1/4"      | 2 1/2"      | 2 3/4"      | 3"         |
| 900          | <b>11.5</b>       | <b>15.5</b> | <b>19.5</b> | <b>23</b>   | <b>27</b>   | <b>30.5</b> | <b>34.5</b> | <b>38</b>   | <b>42</b>  |
|              | 43.5              | 58.5        | 74          | 87          | 102         | 115.5       | 130.5       | 144         | 159        |
| 1200         | <b>17</b>         | <b>22</b>   | <b>27</b>   | <b>32</b>   | <b>37.5</b> | <b>42</b>   | <b>48</b>   | <b>52.5</b> | <b>58</b>  |
|              | 64.5              | 83.5        | 102         | 121         | 142         | 159         | 182         | 199         | 220        |
| 1500         | <b>22</b>         | <b>29</b>   | <b>35.5</b> | <b>41.5</b> | <b>48</b>   | <b>54.5</b> | <b>61</b>   | <b>67</b>   | <b>74</b>  |
|              | 83.5              | 110         | 134         | 157         | 182         | 206         | 231         | 254         | 280        |
| 1800         | <b>27.5</b>       | <b>35.5</b> | <b>43.5</b> | <b>51</b>   | <b>59</b>   | <b>66</b>   | <b>74</b>   | <b>81.5</b> | <b>90</b>  |
|              | 104               | 134         | 165         | 193         | 223         | 250         | 280         | 308         | 341        |
| 2100         | <b>33</b>         | <b>42</b>   | <b>51.5</b> | <b>60</b>   | <b>69.5</b> | <b>78</b>   | <b>87</b>   | <b>96.5</b> | <b>106</b> |
|              | 125               | 159         | 195         | 227         | 263         | 295         | 329         | 365         | 401        |
| 2400         | <b>38</b>         | <b>49</b>   | <b>59.5</b> | <b>70</b>   | <b>80</b>   | <b>90</b>   | <b>101</b>  | <b>111</b>  | <b>122</b> |
|              | 144               | 185         | 225         | 265         | 303         | 341         | 382         | 420         | 462        |

*gpm/lpm*

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

# Average Input Power - Pumps

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

## P30/31

| Speed<br>RPM | Gear Width Inches |        |        |        |    |
|--------------|-------------------|--------|--------|--------|----|
|              | 1"                | 1 1/4" | 1 1/2" | 1 3/4" | 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 |

HP/kW

## P50/51

| Speed<br>RPM | Gear Width Inches |        |        |        |    |        |        |  |
|--------------|-------------------|--------|--------|--------|----|--------|--------|--|
|              | 1"                | 1 1/4" | 1 1/2" | 1 3/4" | 2" | 2 1/4" | 2 1/2" |  |
| 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     |  |

HP/kW

| Shaft Style      | PL Chart              |                 |
|------------------|-----------------------|-----------------|
|                  | Integral Shaft & Gear | Two Piece Style |
| <b>30/31</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>50/51</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>75/76</b>     |                       |                 |
| SAE "C" Single   | 8,000                 | 8,000           |
| SAE "C" Tandem   | 12,500                | --              |
| SAE "C" Key      | 7,500                 | 7,500           |
| Connecting Shaft | --                    | 10,000          |

### 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.

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

## P75/76

| Speed<br>RPM | Gear Width Inches |        |        |        |     |        |        |         |     |  |
|--------------|-------------------|--------|--------|--------|-----|--------|--------|---------|-----|--|
|              | 1"                | 1 1/4" | 1 1/2" | 1 3/4" | 2"  | 2 1/4" | 2 1/2" | 2 3/4"* | 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 |  |

HP/kW

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

# Average Performance Data - Motors

Motor performance data at 2000 PSI (138 bar).

## M30

| 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:  $\frac{\text{In.-lbs.}}{\text{Nm}}$  Flow:  $\frac{\text{GPM}}{\text{LPM}}$  Power:  $\frac{\text{HP}}{\text{kW}}$

## M50

| 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          | 670     | 8.5   | 10.5  | 1070        | 13.5  | 15.5  | 1450    | 18    | 21    |
|              | 75.5    | 6.5   | 39.5  | 121         | 10    | 58.5  | 164     | 13.5  | 79.5  |
| 1200         | 680     | 13    | 15.5  | 1075        | 20.5  | 22.5  | 1450    | 27.5  | 30.5  |
|              | 77      | 9.5   | 58.5  | 121.5       | 15    | 85    | 164     | 20.5  | 115   |
| 1600         | 670     | 17    | 20    | 1045        | 26.5  | 30    | 1440    | 36.5  | 40    |
|              | 75.5    | 12.5  | 75.5  | 118         | 20    | 114   | 162.5   | 27    | 151   |
| 2000         | 660     | 21    | 25    | 1030        | 32.5  | 37    | 1415    | 44.5  | 49    |
|              | 74.5    | 15.5  | 94.5  | 116.5       | 24    | 140   | 160     | 33    | 185   |

U.S./Metric Torque:  $\frac{\text{In.-lbs.}}{\text{Nm}}$  Flow:  $\frac{\text{GPM}}{\text{LPM}}$  Power:  $\frac{\text{HP}}{\text{kW}}$

## M75

| 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          | 1050    | 13.5  | 20.5  | 1650        | 21    | 28    | 2200    | 28    | 35.5  |
|              | 118.5   | 10    | 77.5  | 186.5       | 15.5  | 106   | 248.5   | 21    | 134   |
| 1200         | 1025    | 19.5  | 27.5  | 1600        | 30.5  | 38    | 2200    | 42    | 49.5  |
|              | 116     | 14.5  | 104   | 181         | 22.5  | 144   | 248.5   | 31.5  | 187   |
| 1600         | 1000    | 25.5  | 34    | 1575        | 40    | 49    | 2175    | 55    | 64    |
|              | 113     | 19    | 129   | 178         | 30    | 185   | 245.5   | 41    | 242   |
| 2000         | 950     | 30    | 41.5  | 1550        | 49    | 59    | 2175    | 67.5  | 78    |
|              | 107.5   | 22.5  | 157   | 175         | 36.5  | 223   | 245.5   | 50.5  | 295   |

U.S./Metric Torque:  $\frac{\text{In.-lbs.}}{\text{Nm}}$  Flow:  $\frac{\text{GPM}}{\text{LPM}}$  Power:  $\frac{\text{HP}}{\text{kW}}$

M50 (continued)

| Speed<br>RPM | 2 1/2" Gear |       |       |
|--------------|-------------|-------|-------|
|              | Output      |       | Input |
|              | Torque      | Power | Flow  |
| 800          | 1850        | 23.5  | 26    |
|              | 209         | 17.5  | 98.5  |
| 1200         | 1840        | 35    | 37.5  |
|              | 208         | 26    | 142   |
| 1600         | 1750        | 44.5  | 49.5  |
|              | 197.5       | 33    | 187   |
| 2000         | 1720        | 54.5  | 61.5  |
|              | 194.5       | 40.5  | 233   |

M75 (continued)

| Speed<br>RPM | 2 1/2" Gear |       |       | 3" Gear |       |       |
|--------------|-------------|-------|-------|---------|-------|-------|
|              | Output      |       | Input | Output  |       | Input |
|              | Torque      | Power | Flow  | Torque  | Power | Flow  |
| 800          | 2875        | 36.5  | 43    | 3625    | 46    | 50.5  |
|              | 325         | 27    | 163   | 409.5   | 34.5  | 191   |
| 1200         | 2850        | 54    | 60.5  | 3575    | 68    | 72    |
|              | 322         | 40.5  | 229   | 404     | 50.5  | 273   |
| 1600         | 2800        | 71    | 78.5  | 3500    | 89    | 93    |
|              | 316.5       | 53    | 297   | 395.5   | 66.5  | 352   |
| 2000         | 2750        | 87    | 96.5  | 3425    | 109   | 114   |
|              | 310.5       | 65    | 365   | 387     | 81.5  | 431   |

# Average Performance Data - Motors

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

## M31

| 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          | <b>675</b> | <b>8.5</b>  | <b>9</b>    | <b>1035</b> | <b>13</b> | <b>13</b> | <b>1385</b> | <b>17.5</b> | <b>17</b>   |
|              | 76.5       | 6.5         | 34          | 117         | 9.5       | 49        | 156.5       | 13          | 64.5        |
| 1200         | <b>685</b> | <b>13</b>   | <b>13</b>   | <b>1055</b> | <b>20</b> | <b>18</b> | <b>1410</b> | <b>27</b>   | <b>23.5</b> |
|              | 77.5       | 9.5         | 49          | 119         | 15        | 68        | 159.5       | 20          | 89          |
| 1600         | <b>680</b> | <b>17.5</b> | <b>16</b>   | <b>1030</b> | <b>26</b> | <b>23</b> | <b>1390</b> | <b>35</b>   | <b>30.5</b> |
|              | 77         | 13          | 60.5        | 116.5       | 19.5      | 87        | 157         | 26          | 115         |
| 2000         | <b>660</b> | <b>21</b>   | <b>19.5</b> | <b>1010</b> | <b>32</b> | <b>28</b> | <b>1370</b> | <b>43.5</b> | <b>37</b>   |
|              | 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

## M51

| 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          | <b>825</b> | <b>10.5</b> | <b>10.5</b> | <b>1310</b> | <b>16.5</b> | <b>15.5</b> | <b>1810</b> | <b>23</b> | <b>21</b>   |
|              | 93         | 8           | 39.5        | 148         | 12.5        | 58.5        | 204.5       | 17        | 79.5        |
| 1200         | <b>850</b> | <b>16</b>   | <b>15.5</b> | <b>1340</b> | <b>25.5</b> | <b>22.5</b> | <b>1830</b> | <b>35</b> | <b>30.5</b> |
|              | 96         | 12          | 58.5        | 151.5       | 19          | 85          | 207         | 26        | 115         |
| 1600         | <b>830</b> | <b>21</b>   | <b>20</b>   | <b>1330</b> | <b>34</b>   | <b>30</b>   | <b>1805</b> | <b>46</b> | <b>40</b>   |
|              | 94         | 15.5        | 75.5        | 150.5       | 25.5        | 114         | 204         | 34.5      | 151         |
| 2000         | <b>800</b> | <b>25.5</b> | <b>25</b>   | <b>1290</b> | <b>41</b>   | <b>37</b>   | <b>1770</b> | <b>56</b> | <b>49</b>   |
|              | 90.5       | 19          | 94.5        | 146         | 30.5        | 140         | 200         | 42        | 185         |

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

## M76

| 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          | <b>1410</b> | <b>18</b>   | <b>20.5</b> | <b>2140</b> | <b>27</b>   | <b>28</b> | <b>2875</b> | <b>36.5</b> | <b>35.5</b> |
|              | 159.5       | 13.5        | 77.5        | 242         | 20          | 106       | 325         | 27          | 134         |
| 1200         | <b>1400</b> | <b>26.5</b> | <b>27.5</b> | <b>2140</b> | <b>41</b>   | <b>38</b> | <b>2870</b> | <b>54.5</b> | <b>49.5</b> |
|              | 158         | 20          | 104         | 242         | 30.5        | 144       | 324.5       | 40.5        | 187         |
| 1600         | <b>1375</b> | <b>35</b>   | <b>34</b>   | <b>2110</b> | <b>53.5</b> | <b>49</b> | <b>2830</b> | <b>72</b>   | <b>64</b>   |
|              | 155.5       | 26          | 129         | 238.5       | 40          | 185       | 319.5       | 53.5        | 242         |
| 2000         | <b>1350</b> | <b>43</b>   | <b>41.5</b> | <b>2090</b> | <b>66.5</b> | <b>59</b> | <b>2800</b> | <b>89</b>   | <b>78</b>   |
|              | 152.5       | 32          | 157         | 236         | 49.5        | 223       | 316.5       | 66.5        | 295         |

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



M51 (continued)

| Speed<br>RPM | 2 1/2" Gear |       |       |
|--------------|-------------|-------|-------|
|              | Output      |       | Input |
|              | Torque      | Power | Flow  |
| 800          | 2330        | 29.5  | 26    |
|              | 263.5       | 22    | 98.5  |
| 1200         | 2340        | 44.5  | 37.5  |
|              | 264.5       | 33    | 142   |
| 1600         | 2300        | 58.5  | 49.5  |
|              | 260         | 43.5  | 187   |
| 2000         | 2250        | 71.5  | 61.5  |
|              | 254         | 53.5  | 233   |

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M76 (continued)

| Speed<br>RPM | 2 1/2" Gear |       |       | 3" Gear* |       |       |
|--------------|-------------|-------|-------|----------|-------|-------|
|              | Output      |       | Input | Output   |       | Input |
|              | Torque      | Power | Flow  | Torque   | Power | Flow  |
| 800          | 3650        | 46.5  | 43    | 3625     | 46    | 50.5  |
|              | 412.5       | 34.6  | 163   | 409.5    | 34.5  | 191   |
| 1200         | 3650        | 69.5  | 60.5  | 3575     | 68    | 72    |
|              | 412.5       | 52    | 229   | 404      | 50.5  | 273   |
| 1600         | 3600        | 91.5  | 78.5  | 3500     | 89    | 93    |
|              | 406.5       | 68    | 297   | 395.5    | 66.5  | 352   |
| 2000         | 3500        | 111   | 96.5  | 3425     | 109   | 114   |
|              | 395.5       | 83    | 365   | 387      | 81.5  | 431   |

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

# Dimensional Data

| 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           |
|--------|-----|------------------|----------------------|----------------------|---------------------|---------------------|------------------|------------------|-------------|-------------|-------------|-------------|-------------|
| P30/31 | 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> |
|        | 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       |
| P50/51 | 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> |
|        | 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       |
| P75/76 | 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> |
|        | 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       |

## 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 30/31; subtract 1.00" (25.4 mm) for 50/51.
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 50/51 series, dimension is 6.75" (171.5 mm).
7. Dimension is for wide B-C. Narrow B-C dimensions: 5.00" (127 mm) for 30/31 and 50/51; 7.19" (182.6 mm) for 75/76.
8. Dimension + 1/2 front section gear width

| Model  |     | L <sup>(3)(8)</sup> | M <sup>(4)</sup> |
|--------|-----|---------------------|------------------|
| P30/31 | in. | <b>3.31</b>         | <b>3.25</b>      |
|        | mm. | 84.1                | 82.6             |
| P50/51 | in. | <b>3.75</b>         | <b>3.62</b>      |
|        | mm. | 95.3                | 92.1             |
| P75/76 | in. | <b>4.75</b>         | <b>4.00</b>      |
|        | mm. | 120.7               | 101.6            |

# Approximate Weight

## Single Unit

| Model  | Unit Weight   | 1"        | 1 1/4"      | 1 1/2"    | 1 3/4"      | 2"        | 2 1/4"      | 2 1/2"    | 2 3/4"    | 3"        |
|--------|---------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-----------|-----------|
| P30/31 | <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        | -           | -         | -         | -         |
| P50/51 | <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      | -         | -         |
| P75/76 | <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

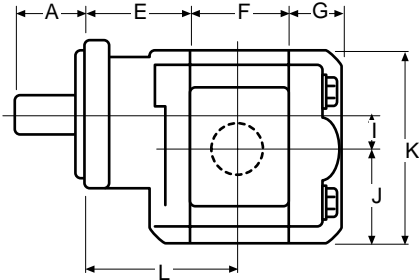
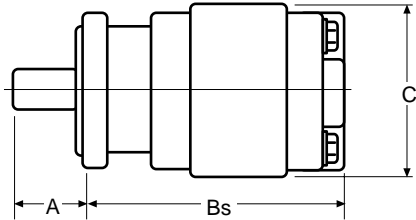
## Multiple Unit\*

| Model  | Add per gear section | 1"        | 1 1/4"      | 1 1/2"    | 1 3/4"      | 2"        | 2 1/4"      | 2 1/2"    | 2 3/4"    | 3"        |
|--------|----------------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-----------|-----------|
| P30/31 | <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      | -           | -         | -         | -         |
| P50/51 | <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        | -         | -         |
| P75/76 | <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        |

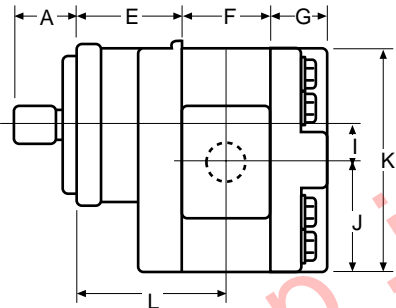
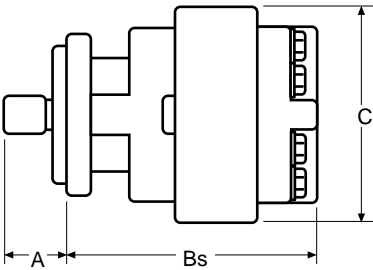
\*Determine the approximate weight from Single Unit chart and add weight of each additional assembly from this chart.

# Dimensional Data

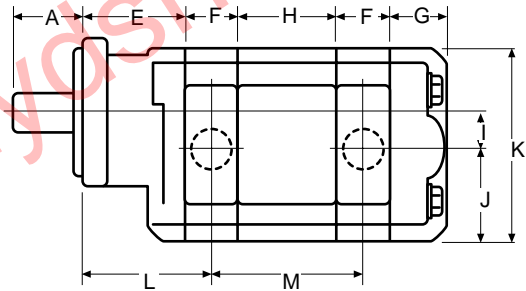
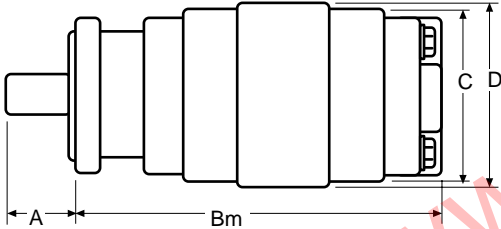
## Single Unit - P30/31/50/51



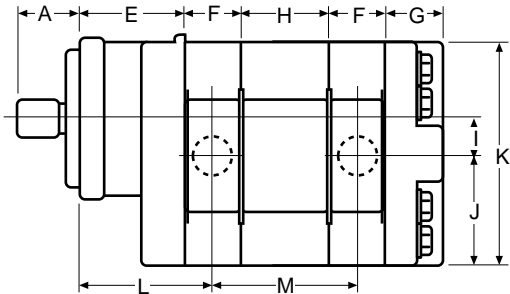
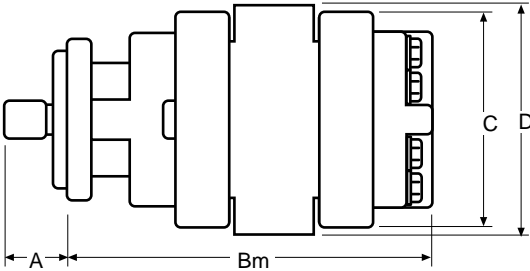
## Single Unit - P75/76



## Multiple Unit - P30/31/50/51

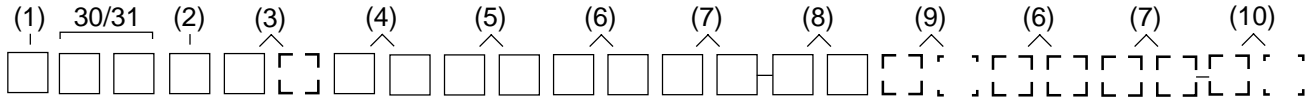


## Multiple Unit - P75/76



# 30/31 Series Coding

Tandem: Repeat if Necessary



## Pump/Motor (1)

|   |       |
|---|-------|
| P | Pump  |
| M | Motor |

## Unit (2)

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

## Shaft End Cover (3)

|    |  |
|----|--|
| 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 (30 series only)  |
| 4  | Pump, cw with O.B. bearing                             |
| 5  | Pump, ccw with O.B. bearing                            |
| 6  | Pump, bi-rotational with O.B. bearing (30 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      |

## Shaft End Cover (4) (type 1 unless noted)

|    |  |
|----|--|
| 00 | Pad mount  |
| 05 | 6 bolt flange - 3.25" dia. bolt circle                                     |
| 42 | SAE 4 bolt "B" ANSI 101-4  |
| 78 | SAE 4 bolt "C" ANSI 127-4  |
| 91 | 30-30, 31-31, & 50-30, 51-31 for piggyback                                 |
| 92 | 75-30, 76-31 for piggyback   |
| 94 | SAE 2 bolt "A" ANSI 82-2   |
| 96 | SAE 2 bolt "B" ANSI 101-2, <b>type 2</b> (not available with O.B. bearing) |
| 97 | SAE 2 bolt "B" ANSI 101-2  |

## Port End Cover (5) (Rear Ported)

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

### NPT Porting (30 series only)

|      |      |    |    |    |
|------|------|----|----|----|
| 3/4" | -    | KE | KI | KY |
| -    | 3/4" | LE | LI | LY |
| 3/4" | 3/4" | ME | MI | MY |

### NPT Porting (30 series only) - Modified Casting\*

|    |    |    |    |   |
|----|----|----|----|---|
| 1" | 1" | QU | QU | - |
|----|----|----|----|---|

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

## Port End Cover (5) (Rear Ported) continued

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

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

|    |    |    |    |    |
|----|----|----|----|----|
| 1" | 1" | JE | JI | JY |
|----|----|----|----|----|

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

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

### BSPP Porting

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

### Metric Straight Thread

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

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

| Left   | Right  | Single | Tandem | Extended Studs |
|--|--------|--------|--------|----------------|
| I  | I      | I      | I      | I              |
| <b>O.D. Tube Porting - Modified Casting*</b> |        |        |        |                |
| 1 1/4"                                       | 1"     | TU     | TU     | -              |
| 1"   | 1 1/4" | XU     | XU     | -              |

|    |     |        |
|----|-----|--------|
| CW | CCW | Double |
| I  | I   | I      |

### Piggyback Port End - Pump Only

|                                       |    |    |    |
|---------------------------------------|----|----|----|
| Type 30-30, 31-31 (double 30-30 only) | 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 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.

### Gear Housing (6)

| Series                 | 30     | 30   | 30   | 30   | 30    | 30   | 31   | 31    | 31   | 31   | 31    |
|------------------------|--------|------|------|------|-------|------|------|-------|------|------|-------|
| 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  |      |       |      |      |       |      |      |       |
| I                      | I      | I    | I    | I    | I     | I    | I    | I     | I    | I    | I     |
| -                      | -      | 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     |
| -                      | 3/4"   | ED   | EC   |      | 2000  | X    | X    | X     |      | X    | X     |
| 3/4"                   | 3/4"   | EF   | EF   |      | 2000  | 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*    |
| -                      | 1"     | AD   | AC   |      |       | 2000 | X    | X     | X    |      | 2500  |
| 1"                     | 1"     | AF   | AF   |      |       |      | X    | X     | X    |      | 2500  |
| 1 1/4"                 | 1"     | AJ   | AG   |      |       |      | X*   | X*    | X    |      | 2500* |
| 1 1/2"                 | 1"     | AK   | AH   |      |       |      |      | X*    | X*   |      | X*    |
| 1 1/4"                 | -      | AA   | AO   |      |       |      | X*   | 2000  |      |      | X*    |
| -                      | 1 1/4" | AO   | AA   |      |       |      |      | 2000  |      |      | X*    |
| 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 |      |       |

#### NOTES

Shaded cells are acceptable for motor codes.

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

NPT ports are not recommended for use at pressures in excess of 1500 PSI.

"X" Means both codes are available.

"2000" or "2500" indicates maximum pressure rating on port.

**Gear Housing (6) continued**

| Series                                | 30     | 30   | 30   | 30   | 30   | 30   | 31   | 31   | 31    | 31    | 31   |
|---------------------------------------|--------|------|------|------|------|------|------|------|-------|-------|------|
| 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  |      |      |      |      |      |       |       |      |
| I                                     | I      | I    | I    | I    | I    | I    | I    | I    | I     | I     | I    |
| <b>Split Flange Porting</b>           |        |      |      |      |      |      |      |      |       |       |      |
| 3/4"                                  | -      | UC   | UD   | X    | X    | UD   | X    | X    | X     | X     |      |
| -                                     | 3/4"   | UD   | UC   | X    | X    | UD   | X    | X    | X     | X     |      |
| 3/4"                                  | 3/4"   | UF   | UF   | X    | X    |      | X    | X    | X     |       |      |
| 1"                                    | 3/4"   | UJ   | UG   | X    | X    | UJ   | UJ   | X    | X     |       |      |
| 1 1/4"                                | 3/4"   | UK   | UH   |      | X    | X    | X    | X    | X*    | X*    |      |
| 1"                                    | -      | OC   | OD   |      | X    | X    | X    | OD   | 2500  | X     | X    |
| -                                     | 1"     | OD   | OC   |      | X    | X    | X    | OD   | 2500  | X     | X    |
| 1"                                    | 1"     | OF   | OF   | X    | X    | X    | X    | X    | 2500  | X     | X    |
| 1 1/4"                                | 1"     | OJ   | OG   |      | X*   | X    | X    | X    |       | X*    | X*   |
| 1 1/2"                                | 1"     | OK   | OH   |      |      |      | X*   | X    |       | X*    | X*   |
| 1 1/4"                                | -      | OA   | OB   |      | 2000 | X    | X    | X    |       | X*    | 2500 |
| -                                     | 1 1/4" | OB   | OA   |      | 2000 | X    | X    | X    |       |       | 2500 |
| 1 1/4"                                | 1 1/4" | OL   | OL   |      |      | X    | X    | X    |       |       | X    |
| 1 1/2"                                | 1 1/4" | OP   | OM   |      |      |      | X*   | X    |       |       | X*   |
| 1 1/2"                                | -      | OE   | OU   |      |      | 2000 | X    |      |       |       | X*   |
| -                                     | 1 1/2" | OU   | OE   |      |      | 2000 | X    |      |       |       | X    |
| <b>BSP Porting</b>                    |        |      |      |      |      |      |      |      |       |       |      |
| 3/4"                                  | -      | YN   | YQ   | X*   | X    | X    | X    | X    | 2500  | X     | X    |
| -                                     | 3/4"   | YQ   | YN   |      | X    | X    | X    | X    | 2500  | X     | X    |
| 3/4"                                  | 3/4"   | YS   | YS   |      | X    | X    |      | X    | 2500  | X     | X    |
| 1"                                    | 3/4"   | YV   | YT   |      | X*   | X*   | YV   | YV   | 2500* | X*    | YV*  |
| 1 1/4"                                | 3/4"   | YW   | YU   |      |      |      | X*   | X*   |       | YU*   | X*   |
| 1"                                    | -      | SL   | RQ   |      | 2000 | X    | X    | X    | SL*   | 2500  | X    |
| -                                     | 1"     | RQ   | SL   |      | 2000 | X    | X    | X    |       | 2500  | X    |
| 1"                                    | 1"     | MP   | MP   |      | 2000 | X    | X    |      |       |       | X    |
| 1 1/4"                                | 1"     | IX   | VY   |      |      | X*   | X*   | X*   |       | 2500* | X*   |
| 1 1/4"                                | -      | NJ   | UI   |      |      |      | 2000 | X    |       |       | X*   |
| -                                     | 1 1/4" | UI   | NJ   |      |      |      | 2000 | X    |       |       |      |
| 1 1/4"                                | 1 1/4" | PF   | PF   |      |      |      |      | 2000 |       |       |      |
| 1 1/2"                                | 1"     | VI   | HW   |      |      |      |      |      |       |       | X*   |
| <b>Metric Straight Thread Porting</b> |        |      |      |      |      |      |      |      |       |       |      |
| 3/4"                                  | -      | EN   | TQ   |      | X    | X    | TQ   |      | 2500  | X     |      |
| -                                     | 3/4"   | TQ   | EN   |      | X    | X    | TQ   |      | 2500  | X     |      |
| 3/4"                                  | 3/4"   | ES   | ES   |      | X    | X    |      |      | 2500  | X     |      |
| 1"                                    | 3/4"   | EV   | ET   |      | X*   | X*   | EV   | EV   |       | X*    | X*   |
| 1 1/4"                                | 3/4"   | EW   | EU   |      |      |      |      |      |       |       | X*   |
| 1"                                    | -      | NL   | ER   |      | X*   |      | X    | ER   | ER    | 2500  |      |
| -                                     | 1"     | ER   | NL   |      |      |      | X    | ER   | ER    | 2500  |      |
| 1"                                    | 1"     | CM   | CM   |      | 2000 | X    |      |      |       | 2500  |      |
| 1 1/4"                                | 1"     | EX   | VE   |      |      | X*   | X*   | X*   |       | 2500* |      |
| 1 1/2"                                | 1"     | VA   | HA   |      |      | X*   | X*   | X*   |       |       | X*   |
| 1 1/4"                                | 1 1/4" | PA   | PA   |      |      |      | 2000 | X    |       |       |      |
| 1 1/2"                                | 1 1/4" | SA   | QA   |      |      |      |      | X*   |       |       |      |

**NOTES**

Shaded cells are acceptable for motor codes.

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

"X" Means both codes are available.

"2000" or "2500" indicates maximum pressure rating on port.

**Gear Housing (6) continued**

| Series                | 30         | 30        | 30         | 30   | 30   | 30   | 31                                    | 31   | 31   | 31   | 31   |
|-----------------------|------------|-----------|------------|------|------|------|---------------------------------------|------|------|------|------|
| 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 |
| <b>IN</b>             | <b>OUT</b> | <b>CW</b> | <b>CCW</b> |      |      |      |                                       |      |      |      |      |
|                       |            |           |            |      |      |      |                                       |      |      |      |      |
|                       |            |           |            |      |      |      | <b>Metric Straight Thread Porting</b> |      |      |      |      |
| 3/4"                  | -          | VN        | VQ         | 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*   |
| 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    |
| 1 1/4"                | 1"         | UX        | VU         |      | 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*   |
| 1 1/2"                | -          | UY        | TO         |      |      | X*   | 2000                                  |      |      |      | X*   |
| -                     | 1 1/2"     | TO        | UY         |      |      |      | 2000                                  |      |      |      | X    |

**NOTES:**

Shaded cells are acceptable for motor codes.

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

"X" Means both codes are available.

"2000" or "2500" indicates maximum pressure rating on port.

**Gear Width (7)**
**30 Series**

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

**31 Series**

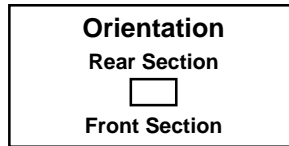
|           | Gear Width | in. <sup>3</sup> /rev. | cm <sup>3</sup> /rev. | Max Pressure       |
|-----------|------------|------------------------|-----------------------|--------------------|
| <b>05</b> | 1/2"       | 0.99                   | 16.1                  | 3000 psi (207 bar) |
| <b>07</b>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

### Shaft Type (8) (type 1 unless noted)

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

|    |   |
|----|---|
| 07 | SAE "C" 14 tooth spline 1.25" dia.,<br>ANSI 32-4 (two piece only)   |
| 12 | Keyed shaft .75 dia., .19"X.19"X1.56" key (two piece only)  |
| 14 | 30-30, 31-31 piggyback shaft  |
| 22 | 50-30, 51-31 piggyback shaft  |
| 23 | 75-30, 76-31 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<br>(single & two piece), #6 woodruff key                          |
| 43 | SAE "B-B" keyed 1.00" dia. 1/4"X3/8"X1 1/4" key,<br>ANSI 25-1 modified length                                   |
| 65 | SAE "B" 13 tooth spline .875" dia.,<br>ANSI 22-4, <b>type 2</b> (single & tandem)                               |
| 66 | SAE "B" keyed .88" dia, 1/4"X3/8"X1" key,<br><b>type 2</b> (single & tandem)                                    |
| 67 | SAE "B-B" keyed 1.00" dia., 1/4"X3/8"X1 1/4" key,<br>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,<br>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.,<br>ANSI 25-4 (single & tandem)   |

### Bearing Carriers (9) Pump Only



#### Common Inlet Passage

| IN | OUT | CW | CCW |
|----|-----|----|-----|
| I  | I   | I  | I   |
| -  | -   | C  | D   |
| *  | -   | A  | U   |

\* 31 Series only. Used when only one adjacent gear housing has an inlet port.

#### NPT Porting (30 Series only)

|        |      |    |    |
|--------|------|----|----|
| 1"     | -    | TB | BT |
| 1 1/4" | -    | VB | BV |
| 1"     | 3/4" | TX | XT |
| 1 1/4" | 3/4" | VX | XV |
| 1 1/4" | 1"   | VZ | ZV |
| 1"     | 3/4" | TJ | JT |
| 1 1/4" | 3/4" | VJ | JV |
| 1 1/4" | 1"   | VK | KV |
| 1 1/2" | 1"   | KW | -  |
| 1"     | 3/4" | ZX | XZ |
| 1"     | 3/4" | ZS | SZ |

#### ODT Porting

|        |      |    |    |
|--------|------|----|----|
| 1"     | -    | CB | BC |
| 1 1/4" | -    | DB | BD |
| 1 1/2" | -    | FB | BF |
| *      | 3/4" | -  | JP |
| 1"     | 3/4" | CJ | JC |
| 1 1/4" | 3/4" | DJ | JD |
| 1 1/2" | 3/4" | FJ | JF |
| 1 1/4" | 1"   | DK | KD |
| 1 1/2" | 1"   | FK | KF |

\* 30 Series only.

|         |      |    |    |
|---------|------|----|----|
| 1"      | 3/4" | CR | RC |
| 1 1/4"  | 3/4" | DR | RD |
| *1 1/2" | 3/4" | FR | RF |
| 1 1/4"  | 1"   | DS | SD |
| 1 1/2"  | 1"   | FS | SF |

\* 30 Series only.

|    |      |    |    |
|----|------|----|----|
| 1" | 3/4" | KJ | JK |
| 1" | 3/4" | KX | XK |

#### Split Flange Porting

| IN      | OUT  | CW | CCW |
|---------|------|----|-----|
| I       | I    | I  | I   |
| 1"      | -    | LB | BL  |
| 1 1/4"  | -    | MB | BM  |
| 1 1/2"  | -    | NB | BN  |
| -       | 3/4" | BR | RB  |
| 1"      | 3/4" | LR | RL  |
| 1 1/4"  | 3/4" | MR | RM  |
| 1 1/2"  | 3/4" | NR | RN  |
| 1 1/4"  | 1"   | MS | SM  |
| 1 1/2"  | 1"   | NS | SN  |
| 1"      | 3/4" | LX | XL  |
| 1 1/4"  | 3/4" | MX | XM  |
| *1 1/2" | 3/4" | NX | XN  |
| 1 1/4"  | 1"   | MZ | ZM  |
| 1 1/2"  | 1"   | NZ | ZN  |

\* 30 Series only.

|    |      |    |    |
|----|------|----|----|
| 1" | 3/4" | SR | RS |
| 1" | 3/4" | RZ | ZR |

#### BSPP Porting

|        |      |    |    |
|--------|------|----|----|
| 1"     | -    | CX | XC |
| 1 1/4" | -    | DX | XD |
| 1 1/2" | -    | FX | XF |
| *      | 3/4" | -  | TL |
| 1"     | 3/4" | CT | TC |
| 1 1/4" | 3/4" | DT | TD |
| 1 1/2" | 3/4" | FT | TF |
| 1 1/4" | 1"   | DV | VD |
| 1 1/2" | 1"   | FV | VF |

\* 31 Series only.

|        |      |    |    |
|--------|------|----|----|
| 1"     | 3/4" | GM | MG |
| 1 1/4" | 3/4" | HM | MH |
| 1 1/4" | 1"   | HN | NH |
| 1 1/2" | 1"   | WN | NW |
| 1"     | 3/4" | PN | NP |
| 1"     | 3/4" | SX | XS |



### 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 1/4" | 1"   | <b>HS</b> | <b>SH</b> |
| 1 1/2" | 1"   | <b>WS</b> | <b>SW</b> |
| 1"     | 3/4" |           |           |
| 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 1/4" | 1"   | <b>HV</b> | <b>VH</b> |
| 1 1/2" | 1"   | <b>WV</b> | <b>VW</b> |
| 1"     | 3/4" |           |           |
| 1"     | 3/4" |           |           |

### Connecting Shaft (10)

For connecting tandem units.

#### 1 Connecting Shaft - Multiple Units

14 Piggyback Pump Connecting Shaft P30 to P30, P31 to P31

22 Piggyback Pump Connecting Shaft P50 to P30, P51 to P31

23 Piggyback Pump Connecting Shaft P75 to P30, P76 to P31

#### NOTE

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

### Bearing Carriers (9) Motor Only

#### No Ports

| IN | OUT | DUAL     |
|----|-----|----------|
| 1" | 1"  |          |
| -  | -   | <b>B</b> |

#### NPT Porting (30 Series only)

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

#### ODT Porting

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

#### Split Flange Porting

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

#### BSPP Porting

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

#### Metric Split Flange Porting

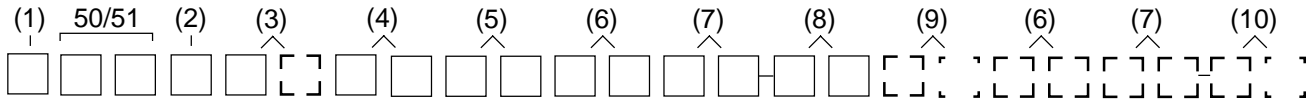
| IN     | OUT    | DUAL      |
|--------|--------|-----------|
| 1"     | 1"     |           |
| 1 1/4" | 1 1/4" | <b>SS</b> |

#### Metric Straight Thread Porting

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

# 50/51 Series Coding

Tandem: Repeat if Necessary



## Pump/Motor (1)

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

## Unit (2)

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

## Shaft End Cover (3)

|           |  |
|-----------|--|
| <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 (50 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 (50 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      |

## Shaft End Cover (4) (type 1 unless noted)

|           |  |
|-----------|--|
| <b>00</b> | 4 bolt pad mount                         |
| <b>42</b> | SAE 4 bolt "B" ANSI 101-4                |
| <b>78</b> | SAE 4 bolt "C" ANSI 127-4                |
| <b>91</b> | 50-50, 51-51 for piggyback               |
| <b>92</b> | 75-50, 76-51 for piggyback               |
| <b>96</b> | SAE 2 bolt "B" ANSI 101-2, <b>type 2</b> |
| <b>97</b> | SAE 2 bolt "B" ANSI 101-2                |
| <b>98</b> | SAE 2 bolt "C" ANSI 127-2                |
| <b>99</b> | SAE 2 bolt "C" ANSI 127-2, <b>type 2</b> |

## Port End Cover (5) (Rear Ported)

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

### NPT Porting (50 series only)

|      |      |           |           |           |
|------|------|-----------|-----------|-----------|
| 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> |

### O.D.T. Porting

|      |      |           |           |           |
|------|------|-----------|-----------|-----------|
| 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> |

## Port End Cover (5) continued

| Left                | Right | Single    | Tandem    | Extended Studs |
|---------------------|-------|-----------|-----------|----------------|
| I                   | I     | I         | I         | I              |
| <b>BSPP Porting</b> |       |           |           |                |
| 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> |

Note: 3/4" PEC ports are rated to 2500 PSI max.

|                                       | CW        | CCW       | Double    |
|---------------------------------------|-----------|-----------|-----------|
|                                       | I         | I         | I         |
| <b>Piggyback Port End - Pump Only</b> |           |           |           |
| Type 50-50, 51-51 & 50-30, 51-31      | <b>KO</b> | <b>LO</b> | <b>MO</b> |

Optional:

- Port end cover with integral R/V
- Larger rear ports  
1 1/4 x 1 S.F. or ODT
- Larger side ports  
1 1/4 S.F. or ODT inlet  
1" ODT outlet
- Larger rear ports, but requires special gear housing and cap screws  
1 1/2 x 1 1/2 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.

### Gear Housing (6)

| Series                 | 50         | 50        | 50         | 50    | 50    | 50    | 50   | 50   | 51   | 51   | 51   | 51    | 51                | 51   | 51   |
|------------------------|------------|-----------|------------|-------|-------|-------|------|------|------|------|------|-------|-------------------|------|------|
| 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 |
| <b>IN</b>              | <b>OUT</b> | <b>CW</b> | <b>CCW</b> |       |       |       |      |      |      |      |      |       |                   |      |      |
|                        |            |           |            |       |       |       |      |      |      |      |      |       |                   |      |      |
| -                      | -          | AB        | AB         | X     | X     | X     | X    | X    | X    | X    | X    | X     | <b>No Porting</b> |      |      |
| <b>NPT Porting</b>     |            |           |            |       |       |       |      |      |      |      |      |       |                   |      |      |
| 3/4"                   | -          | IC        | ID         | X     | ID    | ID    | ID   |      |      |      |      |       |                   |      |      |
| -                      | 3/4"       | ID        | IC         | X     | ID    | ID    | ID   |      |      |      |      |       |                   |      |      |
| 3/4"                   | 3/4"       | IF        | IF         | X     | X     | X     | X    | X    |      |      |      |       |                   |      |      |
| 1"                     | 3/4"       | IJ        | IG         | X*    | X     | X     | IJ   | IJ   |      |      |      |       |                   |      |      |
| 1 1/4"                 | 3/4"       | IK        | IH         |       |       |       | X    |      |      |      |      |       |                   |      |      |
| 1"                     | -          | YC        | YD         |       | X     | YD    | YD   | YD   |      |      |      |       |                   |      |      |
| -                      | 1"         | YD        | YC         |       | X     | YD    | YD   | YD   |      |      |      |       |                   |      |      |
| 1"                     | 1"         | YF        | YF         |       | X     | X     | X    | X    |      |      |      |       |                   |      |      |
| 1 1/4"                 | 1"         | YJ        | YG         |       |       | X*    | X    | X    |      |      |      |       |                   |      | YJ   |
| 1 1/4"                 | -          | IA        | IB         |       |       | X*    | X*   | X    |      |      |      |       |                   |      | IB   |
| -                      | 1 1/4"     | IB        | IA         |       |       |       |      | X    |      |      |      |       |                   |      | IB   |
| 1 1/4"                 | 1 1/4"     | YL        | YL         |       |       |       | 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    |
| <b>OD Tube Porting</b> |            |           |            |       |       |       |      |      |      |      |      |       |                   |      |      |
| 3/4"                   | -          | EC        | ED         | 2000  | 2000  | X     | ED   | X    | X*   | X*   |      |       |                   |      | X    |
| -                      | 3/4"       | ED        | EC         | 2000  | 2000  | X     | ED   | X    |      |      |      |       |                   |      | X    |
| 3/4"                   | 3/4"       | EF        | EF         | 2000  | 2000  | X     | X    | X    |      |      |      | 2500  |                   |      | X    |
| 1"                     | 3/4"       | EJ        | EG         | 2000* | 2000* | X     | EJ*  | EJ   |      |      |      |       |                   |      | X    |
| 1 1/4"                 | 3/4"       | EK        | EH         |       |       | X*    | X*   |      |      |      |      | 2500* |                   |      | X*   |
| 1"                     | -          | AC        | AD         | X*    | X*    | 2000  | X    | AD   |      |      |      |       |                   |      | X    |
| -                      | 1"         | AD        | AC         |       |       | 2000  | X    | AD   |      |      |      |       |                   |      | X    |
| 1"                     | 1"         | AF        | AF         |       |       | 2000  | X    | X    |      |      |      |       |                   |      | X    |
| 1 1/4"                 | 1"         | AJ        | AG         |       |       | 2000* | X*   | X*   |      |      |      |       |                   |      | AJ   |
| 1 1/2"                 | 1"         | AK        | AH         |       |       |       | X*   | X*   |      |      |      |       |                   |      | X*   |
| 1 1/4"                 | -          | AA        | AO         |       |       | X*    | X*   | X*   |      |      |      |       |                   |      | AO   |
| -                      | 1 1/4"     | AO        | AA         |       |       |       |      |      |      |      |      | X*    | X*                |      | AO   |
| 1 1/4"                 | 1 1/4"     | AL        | AL         |       |       |       | X    | X    |      |      |      |       |                   |      | X    |
| 1 1/2"                 | 1 1/4"     | AP        | AM         |       |       |       | X*   | X*   |      |      |      |       |                   |      | X*   |
| 1 1/2"                 | -          | AE        | AU         |       |       |       | X*   | X*   |      |      |      |       |                   |      | X*   |
| -                      | 1 1/2"     | AU        | AE         |       |       |       |      |      |      |      |      |       |                   |      | X    |
| 1 1/2"                 | 1 1/2"     | AR        | AR         |       |       |       |      | X    |      |      |      |       |                   |      | X    |

#### NOTES

NPT ports are not recommended for use at pressures in excess of 1500 PSI.  
 Shaded cells are acceptable for motor codes.  
 \* This porting is acceptable for low pressure inlet port only.  
 "X" Means both codes are available.  
 "2000" or "2500" indicates maximum pressure rating on port.

**Gear Housing (6) continued**

|                              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>Series</b>                | 50   | 50   | 50   | 50   | 50   | 50   | 50   | 51   | 51   | 51   | 51   | 51   | 51   | 51   |
| <b>Housing Code</b>          | 10   | 12   | 15   | 17   | 20   | 22   | 25   | 10   | 12   | 15   | 17   | 20   | 22   | 25   |
| <b>Displacement (C.I.R.)</b> | 2.55 | 3.19 | 3.83 | 4.46 | 5.10 | 5.74 | 6.38 | 2.55 | 3.19 | 3.62 | 4.46 | 5.10 | 5.74 | 6.38 |
| <b>Maximum (PSI)</b>         | 2500 | 2500 | 2500 | 2000 | 2000 | 2000 | 2000 | 3000 | 3000 | 3000 | 3000 | 2500 | 2500 | 2500 |

| <b>IN OUT CW CCW</b> |        |    |    |      |       |       |    |    |    |    | <b>Split Flange Porting</b> |    |    |    |    |    |
|----------------------|--------|----|----|------|-------|-------|----|----|----|----|-----------------------------|----|----|----|----|----|
| I                    | I      | I  | I  | I    | I     | I     | I  | I  | I  | I  | I                           | I  | I  | I  | I  | I  |
| 3/4"                 | -      | UC | UD | X    | X     | UD    | UD |    |    |    |                             |    |    |    |    |    |
| -                    | 3/4"   | UD | UC | X    | X     | UD    | UD |    |    |    |                             |    |    |    |    |    |
| 3/4"                 | 3/4"   | UF | UF |      |       |       |    | X  |    | X  |                             |    |    |    |    |    |
| 1**                  | 3/4"   | UJ | UG | X*   | X*    | UJ    | UJ | UJ |    |    |                             |    |    |    |    |    |
| 1 1/4**              | 3/4"   | UK | UH |      |       |       |    |    |    |    | X*                          | X* | X* |    |    |    |
| 1**                  | -      | OC | OD | 2000 | X*    | X     | X  | X  | OD | X  |                             |    |    |    |    |    |
| -                    | 1"     | OD | OC | 2000 | 2000  | X     | X  | X  | OD | X  |                             |    |    |    |    |    |
| 1"                   | 1"     | OF | OF |      | 2000  | X     | X  | X  | X  | X  |                             |    |    |    |    |    |
| 1 1/4**              | 1"     | OJ | OG |      | 2000* | X*    | X* | X  | OJ | OJ |                             |    |    |    |    |    |
| 1 1/2**              | 1"     | OK | OH |      |       | X*    | X* | X* | X  | X  |                             |    |    |    |    |    |
| 1 1/4**              | -      | OA | OB |      |       | X*    | X* | X* | X  | OB | OB                          |    |    |    |    |    |
| -                    | 1 1/4" | OA | OB |      |       |       |    |    | X  | OB | OB                          |    |    |    |    |    |
| 1 1/4"               | 1 1/4" | OL | OL |      |       | 2000  | X  | X  | X  | X  |                             |    |    | X  | X  | X  |
| 1 1/2**              | 1 1/4" | OP | OM |      |       | 2000* | X* | X* | X  | X  |                             |    |    | X* | X  | X  |
| 1 1/2**              | -      | OE | OU |      |       |       | X* | X* | X  | X  |                             |    |    | X* | X* | X* |
| -                    | 1 1/2" | OU | OE |      |       |       |    |    | X  | X  |                             |    |    |    |    |    |
| 1 1/2"               | 1 1/2" | OR | OR |      |       |       |    |    | X  | X  | X                           |    |    |    |    |    |
| 2**                  | -      | XB | ZB |      |       |       |    |    |    |    |                             |    |    |    |    |    |
| 2**                  | 1"     | UQ | UB |      |       |       |    |    | X* | X* | X*                          |    |    |    |    |    |
| 2**                  | 1 1/4" | OQ | ON |      |       |       |    |    | X* | X* | ON*                         |    |    | 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     | YQ  | YQ  |    |    |    |                    |  |  |  |  |    |
| -       | 3/4"   | YQ | YN |       | X     | YQ  | YQ  |    |    |    |                    |  |  |  |  |    |
| 3/4"    | 3/4"   | YS | YS | 2000  | X     | X   |     |    |    | X  |                    |  |  |  |  |    |
| 1**     | 3/4"   | YV | YT | 2000* | X*    | YV* | YV* | YV |    |    |                    |  |  |  |  |    |
| 1 1/4** | 3/4"   | YW | YU |       |       | YW* |     |    |    |    |                    |  |  |  |  |    |
| 1**     | -      | SL | RQ |       | SL*   | RQ* | RQ* | RQ | RQ | RQ |                    |  |  |  |  |    |
| -       | 1"     | RQ | SL |       |       |     |     | RQ | RQ | RQ |                    |  |  |  |  |    |
| 1"      | 1"     | MP | MP |       | 2000  | X   | X   | X  |    |    |                    |  |  |  |  |    |
| 1 1/4** | 1"     | IX | VY |       | 2000* | X*  | VY* | IX | IX |    |                    |  |  |  |  |    |
| 1 1/2"  | 1"     | VI | HW |       |       |     |     |    |    |    |                    |  |  |  |  |    |
| 1 1/4** | -      | NJ | UI |       |       |     | NJ* | UI | UI |    |                    |  |  |  |  |    |
| -       | 1 1/4" | UI | NJ |       |       |     |     | UI | UI |    |                    |  |  |  |  |    |
| 1 1/4"  | 1 1/4" | PF | PF |       |       |     |     | X  | X  |    |                    |  |  |  |  |    |
| 1 1/2** | 1 1/4" | IS | IQ |       |       |     |     |    |    |    |                    |  |  |  |  | X* |

|         |        |    |    |       |       |     |     |     |    |    | <b>Metric Straight Thread</b> |  |  |  |  |  |
|---------|--------|----|----|-------|-------|-----|-----|-----|----|----|-------------------------------|--|--|--|--|--|
| 3/4**   | -      | EN | TQ | X*    | TQ    | TQ  | TQ  |     |    |    |                               |  |  |  |  |  |
| -       | 3/4"   | TQ | EN |       | TQ    | TQ  | TQ  |     |    |    |                               |  |  |  |  |  |
| 3/4"    | 3/4"   | ES | ES | 2000  | X     |     |     |     |    |    |                               |  |  |  |  |  |
| 1**     | 3/4"   | EV | ET | 2000* | X*    | EV* | EV  | EV  |    |    |                               |  |  |  |  |  |
| 1**     | -      | NL | ER |       |       | ER* | ER  | ER  | ER |    |                               |  |  |  |  |  |
| -       | 1"     | ER | NL |       |       |     | ER  | ER  | ER |    |                               |  |  |  |  |  |
| 1"      | 1"     | CM | CM |       | 2000  | X   | X   |     |    |    |                               |  |  |  |  |  |
| 1 1/4** | -      | UA |    |       |       |     |     | UA* | UA | UA |                               |  |  |  |  |  |
| 1 1/4** | 1"     | EX | VE |       | 2000* | X*  | EX* | EX  | EX |    |                               |  |  |  |  |  |
| 1 1/4"  | 1 1/4" | PA | PA |       |       |     |     | X   | X  | X  |                               |  |  |  |  |  |
| 1 1/2** | 1 1/4" | SA | QA |       |       |     |     | X*  | X* | X  |                               |  |  |  |  |  |

NOTES: Shaded cells are acceptable for motor codes. \* This porting is acceptable for low pressure inlet port only. "X" Means both codes are available. "2000" or "2500" indicates maximum pressure rating on port.

**Gear Housing (6) continued**

| Series                | 50     | 50                          | 50   | 50   | 50    | 50   | 50   | 51   | 51   | 51   | 51   | 51    | 51   | 51   |       |    |   |   |  |  |
|-----------------------|--------|-----------------------------|------|------|-------|------|------|------|------|------|------|-------|------|------|-------|----|---|---|--|--|
| 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 | 3.62 | 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    | Metric Split Flange Porting |      |      |       |      |      |      |      |      |      |       |      |      |       |    |   |   |  |  |
| CW                    | CCW    |                             |      |      |       |      |      |      |      |      |      |       |      |      |       |    |   |   |  |  |
| 3/4"*                 | -      | VN                          | VQ   | VQ   | VQ    | VQ   | VQ   |      |      |      |      |       |      |      | X*    |    |   |   |  |  |
| -                     | 3/4"   | VQ                          | VN   | VQ   | VQ    | VQ   | VQ   |      |      |      |      |       |      |      |       |    |   |   |  |  |
| 1"                    | 3/4"   | RV                          | VT   | X*   | RV*   | RV   | RV   | RV   |      |      |      |       |      |      | 2500* | X* |   |   |  |  |
| 1 1/4"*               | 3/4"   | RW                          | RU   |      |       |      |      |      |      |      |      |       |      |      | X*    | X* |   |   |  |  |
| 1"                    | -      | UL                          | UR   |      | UR*   | UR   | UR   | UR   | UR   |      |      |       |      |      | X*    | X* | X | X |  |  |
| -                     | 1"     | UR                          | UL   |      |       | UR   | UR   | UR   | UR   |      |      | X     | X    |      |       |    |   |   |  |  |
| 1"                    | 1"     | UM                          | UM   |      | 2000  | X    | X    | X    | X    |      |      | 2500  | X    | X    | X     |    |   |   |  |  |
| 1 1/4"*               | 1"     | UX                          | VU   |      | 2000* | UX*  | UX*  | UX   | UX   | UX   |      | 2500* | X*   | X*   |       |    |   |   |  |  |
| 1 1/2"*               | 1"     | VO                          | HO   |      |       | X*   | X*   | X*   |      |      |      | 2500* | X*   | X*   | X     |    |   |   |  |  |
| 1 1/4"*               | -      | NO                          | UO   |      |       |      | UO*  | UO   | UO   | UO   |      | X*    | X*   |      |       |    |   |   |  |  |
| -                     | 1 1/4" | UO                          | NO   |      |       |      |      | UO   | UO   | UO   |      |       |      |      |       |    |   |   |  |  |
| 1 1/4"                | 1 1/4" | PO                          | PO   |      | 2000  | X    | X    | X    | X    |      |      |       | X    | X    | X     |    |   |   |  |  |
| 1 1/2"*               | 1 1/4" | SO                          | QO   |      | 2000* | X*   | X*   | X    | X    |      |      |       | X*   | X    | X     |    |   |   |  |  |
| 1 1/2"*               | -      | UY                          | TO   |      |       | X*   | X*   |      | X    |      |      |       | X*   | X*   |       |    |   |   |  |  |
| -                     | 1 1/2" | TO                          | UY   |      |       |      |      |      | X    |      |      |       |      |      |       |    |   |   |  |  |
| 1 1/2"                | 1 1/2" | SV                          | SV   |      |       |      |      | X    | X    | X    |      |       |      |      | X     | X  |   |   |  |  |
| 2"                    | 1 1/4" | JM                          | JR   |      |       |      |      | X*   | X*   | X*   |      |       | X*   | X*   | X*    |    |   |   |  |  |
| 2"                    | 1 1/2" | JQ                          | JN   |      |       |      |      | X*   | X*   | X*   |      |       |      |      | X*    | X* |   |   |  |  |

**NOTES**

Shaded cells are acceptable for motor codes.  
 \* This porting is acceptable for low pressure inlet port only.  
 "X" Means both codes are available.  
 "2000" or "2500" indicates maximum pressure rating on port.

**Gear Width (7)**

**50 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) |

**51 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) |

**Shaft Type (8) (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   |
| 11 | SAE "C" keyed 1.25" dia., 5/16"x15/32"x1 1/2" key, ANSI 32-1                                |
| 22 | 50-50, 51-51 piggyback shaft  |
| 23 | 75-50, 76-51 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)                          |

## Bearing Carriers (9) Pump Only

### Common Inlet Passage

| IN  | OUT | CW | CCW |
|-----|-----|----|-----|
|     |     |    |     |
| -   | -   | C  | D   |
| * - | -   | A  | U   |

\* 51 Series only. Used when only one adjacent gear housing has an inlet port.

### NPT Porting (50 Series only)

|        |      |    |    |
|--------|------|----|----|
| 1"     | -    | TB | BT |
| 1 1/4" | -    | VB | BV |
| 1 1/2" | -    | WB | BW |
| 1"     | 3/4" | TX | XT |
| 1 1/4" | 3/4" | VX | XV |
| 1 1/2" | 3/4" | WX | XW |
| 1 1/4" | 1"   | VZ | ZV |
| 1 1/2" | 1"   | WZ | ZW |
| 1"     | 3/4" | TJ | JT |
| 1 1/4" | 3/4" | VJ | JV |
| 1 1/4" | 1"   | VK | KV |
| 1 1/2" | 1"   | WK | KW |
| 1"     | 3/4" | ZX | XZ |

### ODT Porting

|        |   |    |    |
|--------|---|----|----|
| 1"     | - | CB | BC |
| 1 1/4" | - | DB | BD |
| 1 1/2" | - | FB | BF |

|        |      |    |     |
|--------|------|----|-----|
| -      | 3/4" | PJ | *JP |
| 1"     | 3/4" | CJ | JC  |
| 1 1/4" | 3/4" | DJ | JD  |
| 1 1/2" | 3/4" | FJ | JF  |
| 1 1/4" | 1"   | DK | KD  |
| 1 1/2" | 1"   | FK | KF  |

\* 51 Series only.

|          |      |    |     |
|----------|------|----|-----|
| 1"       | 3/4" | CR | RC  |
| 1 1/4"   | 3/4" | DR | RD  |
| * 1 1/2" | 3/4" | FR | RF  |
| 1 1/4"   | 1"   | DS | SD  |
| 1 1/2"   | 1"   | FS | SF  |
| -        | 1"   | HZ | *ZH |

\* 51 Series only.

|    |      |    |    |
|----|------|----|----|
| 1" | 3/4" | KJ | JK |
|----|------|----|----|

## 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"     | -    | 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  |

### 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 1/2" | 3/4" | WT | TW  |
| 1 1/4" | 1"   | HV | VH  |
| 1 1/2" | 1"   | VV | VW  |
| 1"     | 3/4" | KL | LK  |

## Bearing Carriers (9) (Motor Only)

### No Ports

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

### BSPP Porting

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

### NPT Porting (30 Series only)

|        |        |    |
|--------|--------|----|
| 1"     | 1"     | TT |
| 1 1/4" | 1 1/4" | VV |
| 1 1/2" | 1 1/2" | WW |

### ODT Porting

|        |        |    |
|--------|--------|----|
| 1"     | 1"     | CC |
| 1 1/4" | 1 1/4" | BB |
| 1 1/2" | 1 1/2" | FF |

### Split Flange Porting

|        |        |    |
|--------|--------|----|
| 1"     | 1"     | LL |
| 1 1/4" | 1 1/4" | MM |
| 1 1/2" | 1 1/2" | NN |

### Metric Split Flange Porting

|        |        |    |
|--------|--------|----|
| 1"     | 1"     | RR |
| 1 1/4" | 1 1/4" | SS |

### Metric Straight Thread Porting

|        |        |    |
|--------|--------|----|
| 1"     | 1"     | KK |
| 1 1/4" | 1 1/4" | JJ |

## Connecting Shaft (10)

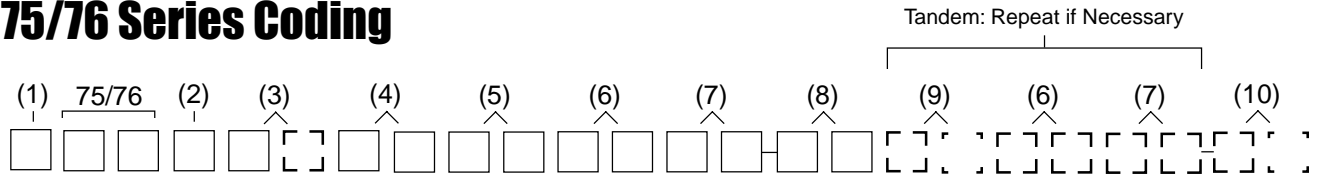
For connecting tandem units.

1 Connecting Shaft - Multiple Units

22 Piggyback Pump Connecting Shaft for P50 to P50, P51 to P51

23 Piggyback Pump Connecting Shaft for P75 to P50, P76 to P51

# 75/76 Series Coding



## Pump/Motor (1)

**P** Pump

**M** Motor

## Unit (2)

**A** Single Unit

**B** Tandem Unit

**C** Single or Tandem w/ two-piece shaft (O.B. bearing required)

## Shaft End Cover (3)

**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 (75 series only)

**4** Pump, cw with O.B. bearing

**5** Pump, ccw with O.B. bearing

**6** Pump, bi-rotational w/ O.B. bearing (75 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

## Shaft End Cover (4) (type 1 only)

**42** SAE 4 bolt "B" ANSI 101-4

**78** SAE 4 bolt "C" ANSI 127-4

**80** SAE 4 bolt "D" ANSI 152-4

**98** SAE 2 bolt "C" ANSI 127-2

## Port End Cover (5) (Rear Ported)

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

## O.D.T. Porting

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

## Metric Straight Thread

|           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|
| <b>1"</b> | <b>1"</b> | <b>TE</b> | <b>TI</b> | <b>TY</b> |
|-----------|-----------|-----------|-----------|-----------|

|           |            |               |
|-----------|------------|---------------|
| <b>CW</b> | <b>CCW</b> | <b>Double</b> |
|-----------|------------|---------------|

## Piggyback Port End - Pump Only

|                                  |           |           |           |
|----------------------------------|-----------|-----------|-----------|
| Type 75-50, 76-51 & 75-30, 76-31 | <b>KO</b> | <b>LO</b> | <b>MO</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 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.

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## Gear Housing (6)

| Series                      | 75     | 75   | 75   | 75   | 75    | 75/76 | 75    | 75     | 75/76  | 75/76 | 76    | 76    | 76   | 76    | 76   | 76    |      |
|-----------------------------|--------|------|------|------|-------|-------|-------|--------|--------|-------|-------|-------|------|-------|------|-------|------|
| Housing Code                | 07     | 10   | 12   | 15   | 17    | 20    | 22    | 25     | 27     | 30    | 10    | 12    | 15   | 17    | 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  | 9.22 | 10.25 |      |
| Maximum (PSI)               | 2500   | 2500 | 2500 | 2500 | 2500  | 2500  | 2250  | 2250   | 2000   | 2000  | 3000  | 3000  | 3000 | 3000  | 2500 | 2500  |      |
| IN                          | OUT    | CW   |      | CCW  |       |       |       |        |        |       |       |       |      |       |      |       |      |
| -                           | -      | AB   | AB   | 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   | ID   | ID    | ID    | ID    | ID     | ID     | ID    | ID    | ID    | ID   | ID    | ID   | ID    | ID   |
| -                           | 3/4"   | ID   | IC   | ID   | ID    | ID    | ID    | ID     | ID     | ID    | ID    | ID    | ID   | ID    | ID   | ID    | ID   |
| 1"                          | 3/4"   | IJ   | IG   |      | X     | IJ    | IJ    |        |        |       |       |       |      |       |      |       |      |
| 1"                          | -      | YC   | YD   |      |       | YD    | YD    |        | X/-    |       |       |       |      |       |      |       |      |
| -                           | 1"     | YD   | YC   |      |       | YD    | YD    |        | 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     | X      |        |       |       |       |      |       |      |       |      |
| <b>OD Tube Porting</b>      |        |      |      |      |       |       |       |        |        |       |       |       |      |       |      |       |      |
| 3/4"                        | -      | EC   | ED   | ED   | ED    | ED    | ED    | ED     | ED     | ED    | ED    | ED    | ED   | ED    | ED   | ED    | ED   |
| 1**                         | 3/4"   | EJ   | EG   | X*   |       | EJ    | EJ    |        |        |       |       |       |      |       |      |       |      |
| 1 1/4**                     | 3/4"   | EK   | EH   |      | X*    |       |       |        |        |       |       |       |      |       |      |       |      |
| 1**                         | -      | AC   | AD   |      |       | AD    | AD    |        |        |       |       |       |      |       |      |       |      |
| -                           | 1"     | AD   | AC   |      |       | AD    | AD    |        |        |       |       |       |      |       |      |       |      |
| 1"                          | 1"     | AF   | AF   |      | 2000  | X     | X     | X      | X/-    |       |       |       |      |       |      |       |      |
| 1 1/4**                     | 1"     | AJ   | AG   |      | 2000* | X*    |       |        |        |       |       |       |      |       |      |       |      |
| 1 1/2**                     | 1"     | AK   | AH   |      |       |       | 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   | UD   | UD    | UD    | UD    | UD     | UD     | UD    | UD    | UD    | UD   | UD    | UD   | UD    | UD   |
| -                           | 3/4"   | UD   | UC   | UD   | UD    | UD    | UD    | UD     | UD     | UD    | UD    | UD    | UD   | UD    | UD   | UD    | UD   |
| 1"                          | 3/4"   | UJ   | UG   | X    | X     | UJ    | UJ    | UJ     | UJ     | UJ    | UJ    | UJ    | UJ   | UJ    | UJ   | UJ    | UJ   |
| 1"                          | -      | OC   | OD   |      |       | OD    | X     | OD     | OD     | OD    | OD    | OD    | OD   | OD    | OD   | OD    | OD   |
| -                           | 1"     | OD   | OC   |      |       | OD    | X     | OD     | OD     | OD    | OD    | OD    | OD   | OD    | OD   | OD    | OD   |
| 1"                          | 1"     | OF   | OF   |      | X     | X     | X     | X      | X/X    |       | X     | X/-   | X/-  | X     | X    | X     | X    |
| 1 1/4**                     | 1"     | OJ   | OG   |      | 2000* | X     | X     | OJ     | OJ/-   | OJ    | OJ    |       | -/X  | X*    | X*   |       |      |
| 1 1/2**                     | 1"     | OK   | OH   |      |       | X*    | X*    | X*     | X/-    | X     |       |       |      | X*    | X*   | X*    |      |
| 1 1/4"                      | -      | OA   | OB   |      |       | OB    | OB    | OB     | OB/-   | OB    | OB    |       |      |       |      |       |      |
| -                           | 1 1/4" | OB   | OA   |      |       | OB    | OB    | OB     | OB/-   | OB    | OB    |       |      |       |      |       |      |
| 1 1/4"                      | 1 1/4" | OL   | OL   |      | 2000  | X     | X     | X      | X/X    | X     | X     | X/X   | X/X  | 2500  | X    | X     | X    |
| 1 1/2**                     | 1 1/4" | OP   | OM   |      |       | X*    | X*    | X*     | X/X    | X     | X     | OP/-  | OP/- | 2500* | X*   | X*    | X    |
| 1 1/2"                      | -      | OE   | OU   |      |       |       |       | X/X    | X      | OU    | OU/-  | OU/-  |      |       |      |       | X    |
| -                           | 1 1/2" | OU   | OE   |      |       |       |       | X/X    | X      | OU    | OU/-  | OU/-  |      |       |      |       | X    |
| 1 1/2"                      | 1 1/2" | OR   | OR   |      |       | 2000  | 2000  | X/X    | X      | X     | X     | X/X   | X/X  |       |      |       | X    |
| 2**                         | 1"     | UQ   | -    |      |       |       |       | X*/-   |        |       |       |       |      |       |      |       |      |
| 2**                         | 1 1/4" | OQ   | ON   |      |       |       | X*    | X*/X*  | X*     | X*    | X/X   | X/X   |      |       | X*   | X*    | X*   |
| 2**                         | 1 1/2" | OV   | OS   |      |       |       | 2000* | X*/X*  | X*     | X*    | X/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*   |
| 2 1/2**                     | 2"     | OZ   | OY   |      |       |       |       |        |        |       |       |       |      |       |      |       | X*/- |

### NOTES

NPT ports are not recommended for use at pressures in excess of 1500 PSI.

Shaded cells are acceptable for motor codes.

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

"X" Means both codes are available.

"2000" or "2500" indicates maximum pressure rating on port.



**Gear Housing (6) continued**

| Series                | 75     | 75   | 75   | 75   | 75    | 75/76 | 75    | 75    | 75/76  | 75/76 | 76                                 | 76   | 76   | 76   | 76   | 76    |
|-----------------------|--------|------|------|------|-------|-------|-------|-------|--------|-------|------------------------------------|------|------|------|------|-------|
| Housing Code          | 07     | 10   | 12   | 15   | 17    | 20    | 22    | 25    | 27     | 30    | 10                                 | 12   | 15   | 17   | 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 | 9.22 | 10.25 |
| Maximum (PSI)         | 2500   | 2500 | 2500 | 2500 | 2500  | 2500  | 2250  | 2250  | 2000   | 2000  | 3000                               | 3000 | 3000 | 3000 | 2500 | 2500  |
| <b>IN OUT CW CCW</b>  |        |      |      |      |       |       |       |       |        |       | <b>BSPP Porting</b>                |      |      |      |      |       |
| 3/4"                  | -      | YN   | YQ   | YQ   | YQ    | YQ    | YQ    | YQ    | YQ/-   |       | YQ                                 | YQ   | YQ   |      |      |       |
| -                     | 3/4"   | YQ   | YN   | YQ   | YQ    | YQ    | YQ    | YQ    | YQ/-   |       | YQ                                 | YQ   | YQ   |      |      |       |
| 3/4"                  | 3/4"   | YS   | YS   |      |       |       |       |       |        |       | X                                  |      |      |      |      |       |
| 1"                    | 3/4"   | YV   | YT   | X*   | YV*   | YV    | YV    | YV    | YV/YV  |       | X*                                 | YV*  | YV   |      | YV   |       |
| 1"                    | -      | SL   | RQ   |      |       | X     | RQ    | RQ    | RQ/RQ  | RQ    | SL*                                | RQ*  | RQ   |      |      | RQ    |
| -                     | 1"     | RQ   | SL   |      |       | X     | RQ    | RQ    | RQ/RQ  | RQ    |                                    |      | RQ   |      |      | RQ    |
| 1"                    | 1"     | MP   | MP   |      | 2000  | X     | X     |       |        |       | 2500                               | X    | X    |      |      |       |
| 1 1/4"                | 1"     | IX   | VY   |      | 2000* | X*    | IX*   |       | IX/-   | IX    | 2500*                              | IX*  |      |      | X*   |       |
| 1 1/4"                | -      | NJ   | UI   |      |       |       | UI*   |       |        |       |                                    |      |      |      |      | UI    |
| -                     | 1 1/4" | UI   | NJ   |      |       |       |       |       |        |       |                                    |      |      |      |      | UI    |
| 1 1/4"                | 1 1/4" | PF   | PF   |      |       | 2000  | 2000  | X/-   |        | X     |                                    |      |      |      | X    | X     |
| 1 1/2"                | 1"     | VI   | HW   |      |       | X*    | VI*   | -VI*  |        |       |                                    |      | VI*  |      |      |       |
| 1 1/2"                | 1 1/4" | IS   | IQ   |      |       | 2000* | 2000* | -IX*  |        |       |                                    |      |      |      | X*   |       |
|                       |        |      |      |      |       |       |       |       |        |       | <b>Metric Straight Thread</b>      |      |      |      |      |       |
| 3/4"                  | -      | EN   | TQ   | TQ   | TQ    | TQ    | TQ    | TQ    |        |       | TQ                                 | TQ   | TQ   |      |      |       |
| -                     | 3/4"   | TQ   | EN   | TQ   | TQ    | TQ    | TQ    | TQ    |        |       | TQ                                 | TQ   | TQ   |      |      |       |
| 1"                    | 3/4"   | EV   | ET   | X*   |       |       | EV    | EV    |        |       | EV*                                | EV   |      |      |      |       |
| 1"                    | -      | NL   | ER   |      |       |       |       |       |        |       | ER*                                | ER   |      |      |      |       |
| -                     | 1"     | ER   | NL   |      |       |       | ER    | ER    |        |       | 2500                               | ER   |      |      |      |       |
| 1"                    | 1"     | CM   | CM   |      | 2000  | X     | X     |       |        |       | 2500                               | X    |      |      |      |       |
|                       |        |      |      |      |       |       |       |       |        |       | <b>Metric Split Flange Porting</b> |      |      |      |      |       |
| 3/4"                  | -      | VN   | VQ   | VQ   | VQ    | VQ    | VQ    | VQ    |        |       |                                    |      |      |      |      |       |
| -                     | 3/4"   | VQ   | VN   | VQ   | VQ    | VQ    | VQ    | VQ    |        |       |                                    |      |      |      |      |       |
| 1"                    | 3/4"   | RV   | VT   | X    | X     | RV    | RV    | RV    | RV/-   |       | X                                  |      |      |      |      |       |
| 1"                    | -      | UL   | UR   |      |       | UR    | UR    | UR    | UR/-   |       |                                    |      |      |      |      |       |
| -                     | 1"     | UR   | UL   |      |       | UR    | UR    | UR    | UR/-   |       |                                    |      |      |      |      |       |
| 1"                    | 1"     | UM   | UM   |      |       | X     | X     | X     | X/X    |       | X                                  | X    | X    | X    |      |       |
| 1 1/4"                | 1"     | UX   | VU   |      |       | X*    | X     | UX    | UX     | UX/-  | UX                                 | UX   |      |      |      |       |
| 1 1/2"                | 1"     | VO   | HO   |      |       | X*    | X*    |       |        |       | X*                                 | X*   |      |      |      |       |
| 1 1/4"                | -      | NO   | UO   |      |       | UO    | UO    | UO    | UO/-   | UO    | UO                                 |      |      |      |      |       |
| -                     | 1 1/4" | UO   | NO   |      |       | UO    | UO    | UO    | UO/-   | UO    | UO                                 |      |      |      |      |       |
| 1 1/4"                | 1 1/4" | PO   | PO   |      |       | X     | X     | X     | X/X    | X     | X                                  | X    | X    | X    | X    | X     |
| 1 1/2"                | 1 1/4" | SO   | QO   |      |       | X*    | X*    | X/X   | X      | SO    | SO                                 | SO   |      |      |      |       |
| 1 1/2"                | -      | UY   | TO   |      |       |       |       | X/X   | X      | X     | TO                                 | TO   |      |      | X*   | X     |
| -                     | 1 1/2" | TO   | UY   |      |       |       |       | X/X   | X      | X     | TO                                 | TO   |      |      |      | X     |
| 1 1/2"                | 1 1/2" | SV   | SV   |      |       | 2000  | X/X   | X     | X      | X/X   | X/X                                | X/X  |      |      |      | X     |
| 2"                    | 1 1/4" | JM   | JR   |      |       | X*    | X*/X* | X*    | X*     | -IX*  | -IX*                               |      |      | X*   | X*   | X*    |
| 2"                    | 1 1/2" | JQ   | JN   |      |       | 2000* | X*/X* | X*    | X*     | X/X   | X/X                                |      |      |      | X*   | X*    |
| 2"                    | 2"     | JS   | JS   |      |       |       |       |       |        | -IX   | X/X                                |      |      |      |      |       |
| 2 1/2"                | 1 1/2" | LJ   | JX   |      |       |       |       |       |        | X*/X* | X*/X*                              |      |      |      |      | X*    |

**NOTES**

Shaded cells are acceptable for motor codes.

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

"X" Means both codes are available.

"2000" or "2500" indicates maximum pressure rating on port.

## Gear Width (7)

### 75 Series

|    | Gear Width | in. <sup>3</sup> /rev. | cm <sup>3</sup> /rev. | Max Pressure       |
|----|------------|------------------------|-----------------------|--------------------|
| 07 | 3/4"       | 3.08                   | 50.4                  | 2500 psi (172 bar) |
| 10 | 1"         | 4.10                   | 67.2                  | 2500 psi (172 bar) |
| 12 | 1 1/4"     | 5.13                   | 84.0                  | 2500 psi (172 bar) |
| 15 | 1 1/2"     | 6.15                   | 100.8                 | 2500 psi (172 bar) |
| 17 | 1 3/4"     | 7.18                   | 117.6                 | 2500 psi (172 bar) |
| 20 | 2"         | 8.20                   | 134.4                 | 2500 psi (172 bar) |
| 22 | 2 1/4"     | 9.23                   | 151.2                 | 2250 psi (155 bar) |
| 25 | 2 1/2"     | 10.25                  | 168.0                 | 2250 psi (155 bar) |
| 27 | 2 3/4"     | 11.28                  | 184.8                 | 2000 psi (138 bar) |
| 30 | 3"         | 12.30                  | 201.6                 | 2000 psi (138 bar) |

### 76 Series

|    | Gear Width | in. <sup>3</sup> /rev. | cm <sup>3</sup> /rev. | Max Pressure       |
|----|------------|------------------------|-----------------------|--------------------|
| 07 | 3/4"       | 3.08                   | 50.4                  | 3000 psi (207 bar) |
| 10 | 1"         | 4.10                   | 67.2                  | 3000 psi (207 bar) |
| 12 | 1 1/4"     | 5.13                   | 84.0                  | 3000 psi (207 bar) |
| 15 | 1 1/2"     | 6.15                   | 100.8                 | 3000 psi (207 bar) |
| 17 | 1 3/4"     | 7.18                   | 117.6                 | 3000 psi (207 bar) |
| 20 | 2"         | 8.20                   | 134.4                 | 2500 psi (172 bar) |
| 22 | 2 1/4"     | 9.23                   | 151.2                 | 2500 psi (172 bar) |
| 25 | 2 1/2"     | 10.25                  | 168.0                 | 2500 psi (172 bar) |
| 27 | 2 3/4"     | 11.28                  | 184.8                 | 2000 psi (138 bar) |
| 30 | 3"         | 12.30                  | 201.6                 | 2000 psi (138 bar) |



## Shaft Type (8)

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 1/2" key,  
ANSI 32-1

## Bearing Carriers (9) (Pump Only)


### Common Inlet Passage

|     |   |  |   |
|-----|---|--|---|
|     |   |  |  |
| -   | - | <b>C</b>   | <b>D</b>  |
| * - | - | <b>A</b>   | <b>U</b>  |


\* 76 Series only. Used when only one adjacent gear housing has an inlet port.

## Bearing Carriers (9) (Motor Only)


### No Ports

|           |            |  |
|-----------|------------|--|
| <b>IN</b> | <b>OUT</b> | <b>DUAL</b>  |
|           |            |  |
| -         | -          |  |
|           |            | <b>B</b>   |

### ODT Porting


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

\* 76 Series only.


### BSPB Porting

|        |        |   |
|--------|--------|---|
|        |        |  |
| 1"     | 1"     | <b>EE</b>   |
| 1 1/4" | 1 1/4" | <b>GG</b>   |
| 1 1/2" | 1 1/2" | <b>HH</b>   |

### Metric Split Flange Porting

|           |            |   |
|-----------|------------|---|
| <b>IN</b> | <b>OUT</b> | <b>DUAL</b>   |
|           |            |   |
|           |            |  |
| 1"        | 1"         | <b>RR</b>   |
| 1 1/4"    | 1 1/4"     | <b>SS</b>   |
| 1 1/2"    | 1 1/2"     | <b>XX</b>   |

### Metric Straight Thread Porting

|        |        |   |
|--------|--------|---|
|        |        |  |
| 1"     | 1"     | <b>KK</b>   |
| 1 1/4" | 1 1/4" | <b>JJ</b>   |
| 1 1/2" | 1 1/2" | <b>ZZ</b>   |

## Connecting Shaft (10)

For connecting tandem units.

- 1 Connecting Shaft - Multiple Units

23 Piggyback Pump Connecting Shaft for P75 to P75

## NOTE

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

[www.hydshop.ir](http://www.hydshop.ir)



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