



whitedriveproducts



**SERIES**

255 -

256 -



**LIGHT DUTY**  
Hydraulic Motor

**WR**

**OVERVIEW**

The WR Series motor incorporates the latest advances for smooth performance, efficiency and durability. It features an optimized Roller Stator<sup>®</sup> geometry with seven precision rollers to eliminate sliding friction and provide rolling contact between the rotor and stator. This increases motor efficiency. A three-zone spool valve, integral check valves and a provision for a case drain reduce pressure on internal seals to improve product life. A wide variety of mounting, shaft, motor displacement and porting options are available to meet all application needs.

**FEATURES / BENEFITS**

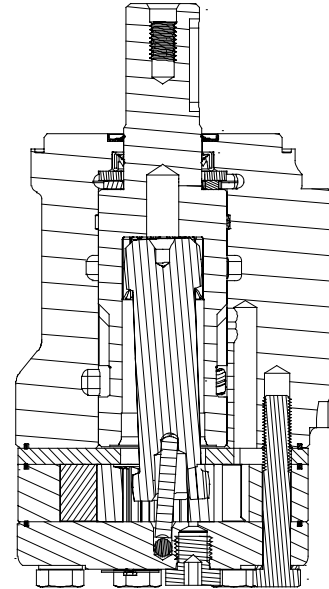
- A variety of mounts and shafts provides flexibility in application design.
- A high pressure shaft seal offers superior seal life and performance.
- The spool valve design gives superior performance and smooth operation over a wide speed and torque range.
- Built-in check valves (not shown) in the housing offer versatility and increased seal life.
- Optimized Roller Stator<sup>®</sup> geometry provides a smooth running high efficient product.

**TYPICAL APPLICATIONS**

conveyors, carwashes, positioners, light-duty wheel drives, sweepers, food processing, grain augers, spreaders, feed rollers, screw drives, brush drives and more

**SERIES DESCRIPTIONS**

255/256 - Hydraulic Motor  
*Standard*



**SPECIFICATIONS**

| CODE | Displacement<br>cm <sup>3</sup> [in <sup>3</sup> /rev] | Max. Speed<br>rpm |        | Max. Flow<br>lpm [gpm] |         | Max. Torque<br>Nm [lb-in] |            | Max. Pressure<br>bar [psi] |            |            |
|------|--|-------------------|--------|------------------------|---------|---------------------------|------------|----------------------------|------------|------------|
|      |  | cont.             | inter. | cont.                  | inter.  | cont.                     | inter.     | cont.                      | inter.     | peak       |
| 040  | 40 [2.5]   | 1116              | 1515   | 45 [12]                | 61 [16] | 93 [823]                  | 123 [1088] | 155 [2250]                 | 207 [3000] | 224 [3250] |
| 050  | 50 [3.1]   | 1058              | 1220   | 53 [14]                | 61 [16] | 111 [982]                 | 149 [1319] | 155 [2250]                 | 207 [3000] | 224 [3250] |
| 060  | 59 [3.6]   | 890               | 1142   | 53 [14]                | 68 [18] | 138 [1221]                | 172 [1522] | 155 [2250]                 | 207 [3000] | 224 [3250] |
| 070  | 71 [4.3]   | 865               | 1078   | 61 [16]                | 76 [20] | 176 [1558]                | 207 [1832] | 172 [2500]                 | 207 [3000] | 241 [3500] |
| 080  | 79 [4.9]   | 759               | 957    | 61 [16]                | 76 [20] | 202 [1788]                | 243 [2150] | 172 [2500]                 | 207 [3000] | 241 [3500] |
| 090  | 88 [5.4]   | 691               | 864    | 61 [16]                | 76 [20] | 222 [1965]                | 263 [2327] | 172 [2500]                 | 207 [3000] | 241 [3500] |
| 100  | 100 [6.1]  | 610               | 760    | 61 [16]                | 76 [20] | 246 [2177]                | 289 [2558] | 172 [2500]                 | 207 [3000] | 241 [3500] |
| 115  | 113 [6.9]  | 539               | 672    | 61 [16]                | 76 [20] | 284 [2513]                | 327 [2894] | 172 [2500]                 | 207 [3000] | 241 [3500] |
| 130  | 129 [7.9]  | 472               | 588    | 61 [16]                | 76 [20] | 316 [2797]                | 375 [3319] | 172 [2500]                 | 207 [3000] | 241 [3500] |
| 160  | 160 [9.8]  | 379               | 469    | 61 [16]                | 76 [20] | 400 [3540]                | 454 [4018] | 172 [2500]                 | 207 [3000] | 241 [3500] |
| 200  | 198 [12.1]   | 308               | 384    | 61 [16]                | 76 [20] | 462 [4088]                | 544 [4814] | 172 [2500]                 | 207 [3000] | 241 [3500] |
| 240  | 236 [14.4]   | 249               | 315    | 61 [16]                | 76 [20] | 548 [4850]                | 642 [5682] | 172 [2500]                 | 207 [3000] | 224 [3250] |
| 250  | 250 [15.3]   | 250               | 300    | 61 [16]                | 76 [20] | 561 [4965]                | 624 [5522] | 172 [2500]                 | 207 [3000] | 224 [3250] |
| 290  | 291 [17.8]   | 210               | 256    | 61 [16]                | 76 [20] | 526 [4655]                | 664 [5876] | 138 [2000]                 | 190 [2750] | 207 [3000] |
| 320  | 322 [19.6]   | 188               | 235    | 61 [16]                | 76 [20] | 518 [4584]                | 690 [6106] | 121 [1750]                 | 172 [2500] | 190 [2750] |
| 400  | 400 [24.4]   | 152               | 190    | 61 [16]                | 76 [20] | 551 [4873]                | 698 [6177] | 104 [1500]                 | 138 [2000] | 155 [2250] |

► Performance data is typical. Performance of production units varies slightly from one motor to another. Running at intermittent ratings should not exceed 10% of every minute of operation.



**DISPLACEMENT PERFORMANCE**

|                  |            |   |                |                  |                  |                  |                  |                  |                  |                  |                  |   |                    |             |  |  |      |                 |
|------------------|------------|---|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|---|--------------------|-------------|--|--|------|-----------------|
| <b>040</b>       |            | Pressure - bar [psi]  |                |                  |                  |                  |                  |                  |                  |                  |                  | Max. Cont.                              |                    | Max. Inter. |  |  |      |                 |
|                  |            | 17 [250]  | 35 [500]       | 52 [750]         | 69 [1000]        | 86 [1250]        | 104 [1500]       | 121 [1750]       | 138 [2000]       | 155 [2250]       | 172 [2500]       | 207 [3000]                              |                    |             |  |  |      |                 |
|                  |            | 40 cm <sup>3</sup> [2.5 in <sup>3</sup> ] / rev   |                |                  |                  |                  |                  |                  |                  |                  |                  | Intermittent Ratings - 10% of Operation |                    |             |  |  |      |                 |
|                  |            | Torque - Nm [lb-in], <b>Speed rpm</b>   |                |                  |                  |                  |                  |                  |                  |                  |                  |   |                    |             |  |  |      |                 |
| Flow - lpm [gpm] | Max. Cont. | 2 [0.5]   | 9 [80]<br>43   | 20 [177]<br>40   | 32 [283]<br>35   | 40 [354]<br>29   | 37 [327]<br>24   |                  |                  |                  |                  |   |                    |             |  |  | 50   | Theoretical rpm |
|                  |            | 4 [1]   | 10 [88]<br>95  | 21 [186]<br>91   | 30 [265]<br>82   | 42 [372]<br>73   | 52 [460]<br>62   | 62 [549]<br>51   |                  |                  |                  |   |                    |             |  |  | 100  |                 |
|                  |            | 8 [2]   | 9 [80]<br>188  | 19 [168]<br>180  | 28 [248]<br>170  | 41 [363]<br>160  | 51 [451]<br>144  | 64 [566]<br>137  | 72 [637]<br>126  | 79 [699]<br>115  | 89 [788]<br>102  | 99 [876]<br>88                          |                    |             |  |  | 199  |                 |
|                  |            | 15 [4]  | 7 [62]<br>365  | 18 [159]<br>355  | 27 [239]<br>343  | 40 [354]<br>324  | 49 [434]<br>312  | 62 [549]<br>295  | 73 [646]<br>293  | 83 [735]<br>275  | 93 [823]<br>257  | 102 [903]<br>237                        | 121 [1071]<br>198  |             |  |  | 373  |                 |
|                  |            | 23 [6]  | 6 [53]<br>560  | 17 [150]<br>548  | 26 [230]<br>532  | 39 [345]<br>515  | 48 [425]<br>502  | 61 [540]<br>485  | 70 [619]<br>471  | 82 [726]<br>451  | 90 [796]<br>432  | 101 [894]<br>444                        | 122 [1080]<br>398  |             |  |  | 572  |                 |
|                  |            | 30 [8]  | 6 [53]<br>728  | 16 [142]<br>716  | 25 [221]<br>706  | 37 [327]<br>684  | 47 [416]<br>667  | 59 [522]<br>648  | 68 [602]<br>634  | 81 [717]<br>629  | 88 [779]<br>618  | 99 [876]<br>601                         | 123 [1088]<br>545  |             |  |  | 746  |                 |
|                  |            | 38 [10]   | 5 [44]<br>942  | 14 [124]<br>936  | 22 [195]<br>927  | 35 [310]<br>918  | 45 [398]<br>904  | 57 [504]<br>890  | 68 [602]<br>874  | 78 [690]<br>852  | 86 [761]<br>835  | 97 [858]<br>812                         | 118 [1044]<br>743  |             |  |  | 945  |                 |
|                  |            | 45 [12]   | 3 [27]<br>1116 | 13 [115]<br>1113 | 21 [186]<br>1100 | 34 [301]<br>1082 | 43 [381]<br>1056 | 55 [487]<br>1028 | 67 [593]<br>1004 | 77 [681]<br>976  | 84 [743]<br>952  | 95 [841]<br>916                         | 116 [1027]<br>870  |             |  |  | 1119 |                 |
|                  |            | 53 [14]   |                | 10 [88]<br>1316  | 20 [177]<br>1301 | 31 [274]<br>1278 | 39 [345]<br>1253 | 52 [460]<br>1230 | 63 [558]<br>1206 | 75 [664]<br>1184 | 82 [726]<br>1154 | 93 [823]<br>1116                        | 115 [1018]<br>1078 |             |  |  | 1318 |                 |
|                  |            | 61 [16]   |                | 8 [71]<br>1515   | 19 [168]<br>1497 | 29 [257]<br>1469 | 38 [336]<br>1442 | 49 [434]<br>1415 | 60 [531]<br>1399 | 74 [655]<br>1378 | 80 [708]<br>1355 | 90 [796]<br>1330                        | 113 [1000]<br>1298 |             |  |  | 1517 |                 |
|                  |            | <b>Overall Efficiency</b> - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/> |                |                  |                  |                  |                  |                  |                  |                  |                  |   |                    |             |  |  |      |                 |
|                  |            | Theoretical Torque - Nm [lb-in]   |                |                  |                  |                  |                  |                  |                  |                  |                  |   |                    |             |  |  |      |                 |
|                  |            | 8.1 [317]   |                |                  |                  |                  |                  |                  |                  |                  |                  |   |                    |             |  |  |      |                 |
|                  |            | mm [in]   |                |                  |                  |                  |                  |                  |                  |                  |                  |   |                    |             |  |  |      |                 |
|                  |            | Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]  |                |                  |                  |                  |                  |                  |                  |                  |                  |   |                    |             |  |  |      |                 |

|                  |            |  |                |   |                  |                  |                  |                  |                  |                  |                  |   |                    |             |  |  |      |                 |
|------------------|------------|--|----------------|---|------------------|------------------|------------------|------------------|------------------|------------------|------------------|---|--------------------|-------------|--|--|------|-----------------|
| <b>050</b>       |            | Pressure - bar [psi]   |                |   |                  |                  |                  |                  |                  |                  |                  | Max. Cont.                              |                    | Max. Inter. |  |  |      |                 |
|                  |            | 17 [250]   | 35 [500]       | 52 [750]  | 69 [1000]        | 86 [1250]        | 104 [1500]       | 121 [1750]       | 138 [2000]       | 155 [2250]       | 172 [2500]       | 207 [3000]                              |                    |             |  |  |      |                 |
|                  |            | 50 cm <sup>3</sup> [3.1 in <sup>3</sup> ] / rev                              |                |   |                  |                  |                  |                  |                  |                  |                  | Intermittent Ratings - 10% of Operation |                    |             |  |  |      |                 |
|                  |            | Torque - Nm [lb-in], <b>Speed rpm</b>  |                |   |                  |                  |                  |                  |                  |                  |                  |   |                    |             |  |  |      |                 |
| Flow - lpm [gpm] | Max. Cont. | 4 [1]  | 11 [97]<br>77  | 24 [212]<br>75  | 37 [327]<br>74   | 49 [434]<br>69   | 61 [540]<br>63   | 74 [655]<br>52   | 82 [726]<br>41   | 91 [805]<br>36   |                  |   |                    |             |  |  | 80   | Theoretical rpm |
|                  |            | 8 [2]  | 11 [97]<br>155 | 24 [212]<br>152   | 36 [319]<br>150  | 49 [434]<br>142  | 62 [548]<br>132  | 75 [664]<br>124  | 88 [779]<br>107  | 99 [876]<br>91   | 107 [947]<br>82  |   |                    |             |  |  | 160  |                 |
|                  |            | 15 [4]   | 9 [80]<br>295  | 23 [204]<br>291   | 36 [319]<br>283  | 49 [434]<br>272  | 62 [548]<br>267  | 75 [664]<br>248  | 88 [779]<br>231  | 99 [876]<br>215  | 110 [973]<br>199 | 123 [1088]<br>182                       | 147 [1301]<br>164  |             |  |  | 300  |                 |
|                  |            | 23 [6]   | 7 [62]<br>452  | 22 [195]<br>447   | 35 [310]<br>434  | 47 [416]<br>430  | 61 [540]<br>416  | 74 [655]<br>402  | 87 [770]<br>385  | 99 [876]<br>368  | 111 [982]<br>346 | 124 [1097]<br>324                       | 149 [1319]<br>300  |             |  |  | 460  |                 |
|                  |            | 30 [8]   | 5 [44]<br>594  | 21 [186]<br>589   | 34 [301]<br>577  | 45 [398]<br>566  | 60 [531]<br>546  | 74 [655]<br>528  | 86 [761]<br>509  | 99 [876]<br>489  | 111 [982]<br>468 | 125 [1106]<br>448                       | 148 [1310]<br>426  |             |  |  | 600  |                 |
|                  |            | 38 [10]  | 3 [27]<br>754  | 19 [168]<br>749   | 32 [283]<br>736  | 45 [398]<br>728  | 57 [504]<br>716  | 70 [619]<br>699  | 82 [726]<br>680  | 95 [841]<br>664  | 107 [947]<br>644 | 120 [1062]<br>624                       | 142 [1257]<br>600  |             |  |  | 760  |                 |
|                  |            | 45 [12]  | 2 [18]<br>896  | 17 [150]<br>892   | 30 [265]<br>875  | 43 [381]<br>873  | 55 [487]<br>861  | 68 [602]<br>843  | 80 [708]<br>827  | 92 [814]<br>812  | 105 [929]<br>794 | 116 [1027]<br>776                       | 138 [1221]<br>752  |             |  |  | 900  |                 |
|                  |            | 53 [14]  |                | 14 [124]<br>1058  | 27 [239]<br>1055 | 39 [345]<br>1052 | 51 [451]<br>1036 | 64 [566]<br>998  | 76 [673]<br>988  | 88 [779]<br>960  | 100 [885]<br>972 | 112 [991]<br>904                        | 134 [1186]<br>860  |             |  |  | 1060 |                 |
|                  |            | 61 [16]  |                | 11 [97]<br>1220   | 24 [212]<br>1216 | 35 [310]<br>1212 | 47 [416]<br>1210 | 60 [531]<br>1198 | 72 [637]<br>1160 | 84 [743]<br>1130 | 96 [850]<br>1112 | 108 [956]<br>1080                       | 130 [1150]<br>1032 |             |  |  | 1220 |                 |
|                  |            |  |                | <b>Overall Efficiency</b> - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/> |                  |                  |                  |                  |                  |                  |                  |   |                    |             |  |  |      |                 |
|                  |            | Theoretical Torque - Nm [lb-in]  |                |   |                  |                  |                  |                  |                  |                  |                  |   |                    |             |  |  |      |                 |
|                  |            | 9.9 [389]  |                |   |                  |                  |                  |                  |                  |                  |                  |   |                    |             |  |  |      |                 |
|                  |            | mm [in]  |                |   |                  |                  |                  |                  |                  |                  |                  |   |                    |             |  |  |      |                 |
|                  |            | Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS] |                |   |                  |                  |                  |                  |                  |                  |                  |   |                    |             |  |  |      |                 |

► Performance data is typical. Performance of production units varies slightly from one motor to another.

**DISPLACEMENT PERFORMANCE**

|   |            |  |                  |                  |                  |                  |                  |                  |                   |                    |                    |   |  |             |  |      |
|---|------------|--|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|--------------------|--------------------|---|--|-------------|--|------|
|   |            | Pressure - bar [psi]   |                  |                  |                  |                  |                  |                  |                   |                    |                    | Max. Cont.                              |  | Max. Inter. |  |      |
| <b>060</b>                                      |            | 17 [250]   | 35 [500]         | 52 [750]         | 69 [1000]        | 86 [1250]        | 104 [1500]       | 121 [1750]       | 138 [2000]        | 155 [2250]         | 172 [2500]         | 207 [3000]                              |  |             |  |      |
| 59 cm <sup>3</sup> [3.6 in <sup>3</sup> ] / rev |            |  |                  |                  |                  |                  |                  |                  |                   |                    |                    | Intermittent Ratings - 10% of Operation |  |             |  |      |
|   |            | Torque - Nm [lb-in], Speed rpm   |                  |                  |                  |                  |                  |                  |                   |                    |                    |   |  |             |  |      |
| Flow - lpm [gpm]                                | 2 [0.5]    | 12 [106]<br>28   | 26 [230]<br>22   | 34 [301]<br>15   | 45 [398]<br>12   |                  |                  |                  |                   |                    |                    |   |  |             |  | 34   |
|   | 4 [1]      | 13 [115]<br>60   | 29 [257]<br>56   | 42 [372]<br>50   | 56 [496]<br>44   | 62 [549]<br>33   | 68 [602]<br>16   |                  |                   |                    |                    |   |  |             |  | 67   |
|   | 8 [2]      | 14 [124]<br>134  | 31 [274]<br>129  | 46 [407]<br>125  | 58 [513]<br>118  | 74 [655]<br>113  | 94 [832]<br>107  | 110 [974]<br>97  | 121 [1071]<br>87  | 137 [1212]<br>73   | 148 [1310]<br>58   | 168 [1487]<br>50                        |  |             |  | 135  |
|   | 15 [4]     | 12 [106]<br>250  | 30 [266]<br>245  | 45 [398]<br>240  | 60 [531]<br>232  | 75 [664]<br>225  | 95 [841]<br>217  | 108 [956]<br>208 | 122 [1080]<br>198 | 138 [1221]<br>185  | 150 [1328]<br>174  | 170 [1505]<br>168                       |  |             |  | 253  |
|   | 23 [6]     | 11 [97]<br>384   | 30 [266]<br>380  | 44 [389]<br>376  | 59 [522]<br>370  | 74 [655]<br>364  | 93 [823]<br>356  | 106 [938]<br>345 | 124 [1097]<br>331 | 138 [1221]<br>318  | 152 [1345]<br>307  | 172 [1522]<br>298                       |  |             |  | 387  |
|   | 30 [8]     | 10 [89]<br>502   | 29 [257]<br>496  | 43 [381]<br>494  | 58 [513]<br>490  | 72 [637]<br>485  | 92 [814]<br>478  | 104 [920]<br>468 | 123 [1089]<br>460 | 135 [1195]<br>450  | 148 [1310]<br>438  | 170 [1505]<br>431                       |  |             |  | 505  |
|   | 38 [10]    | 9 [80]<br>635  | 28 [248]<br>632  | 42 [372]<br>629  | 55 [487]<br>628  | 70 [620]<br>619  | 90 [797]<br>611  | 102 [903]<br>598 | 121 [1071]<br>589 | 133 [1177]<br>578  | 146 [1292]<br>561  | 168 [1487]<br>513                       |  |             |  | 640  |
|   | 45 [12]    | 8 [71]<br>755  | 24 [212]<br>748  | 39 [345]<br>745  | 52 [460]<br>741  | 69 [611]<br>735  | 87 [770]<br>729  | 100 [885]<br>718 | 118 [1044]<br>705 | 130 [1151]<br>688  | 145 [1283]<br>676  | 164 [1451]<br>659                       |  |             |  | 758  |
|   | 53 [14]    | 6 [53]<br>890  | 23 [204]<br>888  | 38 [336]<br>884  | 48 [425]<br>880  | 65 [575]<br>874  | 84 [743]<br>865  | 98 [867]<br>852  | 114 [1009]<br>840 | 127 [1124]<br>831  | 138 [1221]<br>820  | 162 [1434]<br>802                       |  |             |  | 892  |
|   | 61 [16]    |  | 17 [150]<br>1021 | 29 [257]<br>1018 | 44 [389]<br>1011 | 62 [549]<br>1007 | 78 [690]<br>1000 | 90 [797]<br>993  | 106 [938]<br>984  | 121 [1071]<br>974  | 136 [1204]<br>962  | 160 [1416]<br>956                       |  |             |  | 1026 |
|   | 68 [18]    |  | 10 [89]<br>1142  | 26 [230]<br>1140 | 40 [354]<br>1129 | 57 [504]<br>1112 | 73 [646]<br>1097 | 86 [761]<br>1085 | 102 [903]<br>1074 | 115 [1018]<br>1060 | 130 [1151]<br>1044 | 158 [1398]<br>1020                      |  |             |  | 1145 |
|   | Max. Cont. |  |                  |                  |                  |                  |                  |                  |                   |                    |                    |   |  |             |  |      |
| Max. Inter.                                     |            |  |                  |                  |                  |                  |                  |                  |                   |                    |                    |   |  |             |  |      |
| <b>Rotor Width</b>                              |            | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/> |                  |                  |                  |                  |                  |                  |                   |                    |                    |   |  |             |  |      |
| 11.8 [463]                                      |            | Theoretical Torque - Nm [lb-in]  |                  |                  |                  |                  |                  |                  |                   |                    |                    |   |  |             |  |      |
| mm [in]   |            | 16 [142]   | 33 [292]         | 49 [434]         | 65 [575]         | 81 [717]         | 98 [867]         | 114 [1009]       | 131 [1150]        | 147 [1292]         | 164 [1442]         | 179 [1584]                              |  |             |  |      |
|   |            | Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]   |                  |                  |                  |                  |                  |                  |                   |                    |                    |   |  |             |  |      |

|   |         |  |                  |                  |                  |                  |                   |                    |                    |                   |                   |   |  |             |  |      |
|---|---------|--|------------------|------------------|------------------|------------------|-------------------|--------------------|--------------------|-------------------|-------------------|---|--|-------------|--|------|
|   |         | Pressure - bar [psi]   |                  |                  |                  |                  |                   |                    |                    |                   |                   | Max. Cont.                              |  | Max. Inter. |  |      |
| <b>070</b>                                      |         | 17 [250]   | 35 [500]         | 69 [1000]        | 86 [1250]        | 104 [1500]       | 121 [1750]        | 138 [2000]         | 155 [2250]         | 172 [2500]        | 190 [2750]        | 207 [3000]                              |  |             |  |      |
| 71 cm <sup>3</sup> [4.3 in <sup>3</sup> ] / rev |         |  |                  |                  |                  |                  |                   |                    |                    |                   |                   | Intermittent Ratings - 10% of Operation |  |             |  |      |
|   |         | Torque - Nm [lb-in], Speed rpm   |                  |                  |                  |                  |                   |                    |                    |                   |                   |   |  |             |  |      |
| Flow - lpm [gpm]                                | 2 [0.5] | 13 [115]<br>26   | 30 [266]<br>23   |                  |                  |                  |                   |                    |                    |                   |                   |   |  |             |  | 28   |
|   | 4 [1]   | 14 [124]<br>55   | 32 [283]<br>50   | 66 [584]<br>40   | 73 [646]<br>34   |                  |                   |                    |                    |                   |                   |   |  |             |  | 57   |
|   | 8 [2]   | 16 [142]<br>112  | 34 [301]<br>106  | 70 [620]<br>94   | 88 [779]<br>89   | 104 [920]<br>81  | 120 [1062]<br>73  | 134 [1186]<br>66   | 149 [1319]<br>51   |                   |                   |   |  |             |  | 113  |
|   | 15 [4]  | 15 [133]<br>211  | 33 [292]<br>206  | 71 [628]<br>194  | 87 [770]<br>186  | 107 [947]<br>178 | 123 [1089]<br>172 | 139 [1230]<br>163  | 158 [1398]<br>152  | 171 [1513]<br>143 | 196 [1735]<br>125 | 211 [1867]<br>110                       |  |             |  | 213  |
|   | 23 [6]  | 14 [124]<br>324  | 31 [274]<br>319  | 66 [584]<br>306  | 83 [735]<br>298  | 104 [920]<br>288 | 124 [1097]<br>280 | 138 [1221]<br>270  | 157 [1389]<br>260  | 176 [1558]<br>248 | 192 [1699]<br>232 | 207 [1832]<br>221                       |  |             |  | 326  |
|   | 30 [8]  | 13 [115]<br>425  | 30 [266]<br>418  | 67 [593]<br>403  | 84 [743]<br>394  | 104 [920]<br>386 | 123 [1089]<br>376 | 137 [1212]<br>364  | 159 [1407]<br>350  | 174 [1540]<br>339 | 193 [1708]<br>326 | 203 [1797]<br>312                       |  |             |  | 426  |
|   | 38 [10] | 10 [89]<br>539   | 29 [257]<br>537  | 65 [575]<br>529  | 82 [726]<br>520  | 103 [903]<br>508 | 115 [1018]<br>500 | 135 [1195]<br>486  | 152 [1345]<br>474  | 172 [1522]<br>458 | 186 [1646]<br>440 | 204 [1805]<br>425                       |  |             |  | 539  |
|   | 45 [12] | 7 [62]<br>638  | 25 [221]<br>634  | 63 [558]<br>622  | 82 [726]<br>614  | 98 [867]<br>604  | 117 [1035]<br>594 | 132 [1168]<br>578  | 152 [1345]<br>566  | 169 [1496]<br>552 | 189 [1673]<br>538 | 199 [1761]<br>522                       |  |             |  | 638  |
|   | 53 [14] | 5 [44]<br>752  | 21 [186]<br>751  | 58 [513]<br>743  | 75 [664]<br>736  | 94 [832]<br>728  | 115 [1018]<br>718 | 131 [1159]<br>705  | 147 [1301]<br>690  | 167 [1478]<br>675 | 187 [1655]<br>650 | 204 [1805]<br>630                       |  |             |  | 752  |
|   | 61 [16] |  | 17 [150]<br>865  | 54 [478]<br>854  | 73 [646]<br>843  | 91 [805]<br>831  | 107 [947]<br>818  | 128 [1133]<br>807  | 143 [1266]<br>795  | 160 [1416]<br>782 | 177 [1566]<br>766 | 194 [1717]<br>750                       |  |             |  | 865  |
|   | 68 [18] |  | 16 [142]<br>965  | 48 [425]<br>960  | 70 [620]<br>956  | 88 [779]<br>945  | 106 [938]<br>932  | 122 [1080]<br>920  | 139 [1230]<br>902  | 156 [1381]<br>888 | 173 [1531]<br>876 | 191 [1690]<br>850                       |  |             |  | 965  |
|   | 76 [20] |  | 12 [106]<br>1078 | 47 [416]<br>1070 | 65 [575]<br>1062 | 81 [717]<br>1048 | 100 [885]<br>1036 | 118 [1044]<br>1014 | 138 [1221]<br>1000 | 152 [1345]<br>988 | 173 [1531]<br>960 | 189 [1673]<br>944                       |  |             |  | 1078 |
| Max. Cont.                                      |         |  |                  |                  |                  |                  |                   |                    |                    |                   |                   |   |  |             |  |      |
| Max. Inter.                                     |         |  |                  |                  |                  |                  |                   |                    |                    |                   |                   |   |  |             |  |      |
| <b>Rotor Width</b>                              |         | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/> |                  |                  |                  |                  |                   |                    |                    |                   |                   |   |  |             |  |      |
| 13.8 [542]                                      |         | Theoretical Torque - Nm [lb-in]  |                  |                  |                  |                  |                   |                    |                    |                   |                   |   |  |             |  |      |
| mm [in]   |         | 19 [169]   | 39 [348]         | 77 [685]         | 97 [854]         | 117 [1033]       | 136 [1202]        | 155 [1371]         | 174 [1540]         | 194 [1719]        | 213 [1888]        | 232 [2056]                              |  |             |  |      |
|   |         | Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]   |                  |                  |                  |                  |                   |                    |                    |                   |                   |   |  |             |  |      |

► Performance data is typical. Performance of production units varies slightly from one motor to another.



DISPLACEMENT PERFORMANCE

|  |         |  |                 |                 |                 |                   |                   |                   |                   |                   |                   |                   |   |  |
|--|---------|--|-----------------|-----------------|-----------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---|--|
| <b>080</b>   |         | Pressure - bar [psi]   |                 |                 |                 |                   |                   |                   |                   | Max. Cont.        |                   | Max. Inter.       |   |  |
|  |         | 17 [250]   | 35 [500]        | 69 [1000]       | 86 [1250]       | 104 [1500]        | 121 [1750]        | 138 [2000]        | 155 [2250]        | 172 [2500]        | 190 [2750]        | 207 [3000]        |   |  |
| 79 cm <sup>3</sup> [4.9 in <sup>3</sup> ] / rev                              |         |  |                 |                 |                 |                   |                   |                   |                   |                   |                   |                   | Intermittent Ratings - 10% of Operation |  |
| Flow - lpm [gpm]   |         | Torque - Nm [lb-in], Speed rpm   |                 |                 |                 |                   |                   |                   |                   |                   |                   |                   | Theoretical rpm                         |  |
|  |         | 4 [1]  | 18 [159]<br>49  | 38 [336]<br>46  | 77 [681]<br>41  | 94 [832]<br>40    |                   |                   |                   |                   |                   |                   |   |  |
| Max. Cont.   | 8 [2]   | 18 [159]<br>99   | 39 [345]<br>98  | 76 [673]<br>89  | 98 [867]<br>83  | 120 [1062]<br>74  | 141 [1248]<br>68  | 159 [1407]<br>59  | 174 [1540]<br>50  |                   |                   |                   | 100                                     |  |
|  | 15 [4]  | 17 [150]<br>189  | 38 [336]<br>187 | 76 [673]<br>177 | 98 [867]<br>170 | 120 [1062]<br>161 | 141 [1248]<br>151 | 160 [1416]<br>144 | 180 [1593]<br>131 | 199 [1761]<br>122 | 220 [1947]<br>112 | 240 [2124]<br>100 | 190                                     |  |
|  | 23 [6]  | 17 [150]<br>290  | 37 [327]<br>286 | 79 [690]<br>274 | 97 [858]<br>268 | 119 [1053]<br>259 | 140 [1239]<br>250 | 160 [1416]<br>240 | 182 [1611]<br>227 | 202 [1788]<br>214 | 222 [1965]<br>200 | 243 [2150]<br>185 | 291                                     |  |
|  | 30 [8]  | 14 [124]<br>374  | 35 [310]<br>368 | 75 [664]<br>357 | 96 [850]<br>349 | 117 [1035]<br>339 | 138 [1221]<br>330 | 159 [1407]<br>321 | 181 [1602]<br>307 | 200 [1770]<br>296 | 220 [1947]<br>284 | 241 [2133]<br>268 | 380                                     |  |
|  | 38 [10] | 11 [97]<br>480   | 34 [301]<br>475 | 73 [646]<br>464 | 94 [832]<br>453 | 116 [1027]<br>442 | 138 [1221]<br>433 | 158 [1398]<br>423 | 177 [1566]<br>412 | 199 [1761]<br>398 | 218 [1929]<br>383 | 238 [2106]<br>370 | 481                                     |  |
|  | 45 [12] | 8 [71]<br>568  | 31 [274]<br>562 | 72 [637]<br>548 | 93 [823]<br>543 | 114 [1009]<br>532 | 135 [1195]<br>525 | 155 [1372]<br>515 | 176 [1558]<br>501 | 196 [1735]<br>486 | 215 [1903]<br>472 | 235 [2080]<br>458 | 570                                     |  |
|  | 53 [14] | 5 [44]<br>668  | 28 [248]<br>663 | 69 [611]<br>649 | 90 [796]<br>642 | 111 [982]<br>632  | 133 [1177]<br>624 | 152 [1345]<br>620 | 172 [1522]<br>600 | 193 [1708]<br>585 | 212 [1876]<br>570 | 232 [2053]<br>554 | 671                                     |  |
|  | 61 [16] |  | 24 [212]<br>759 | 65 [575]<br>752 | 85 [752]<br>747 | 109 [965]<br>731  | 129 [1142]<br>722 | 148 [1310]<br>710 | 168 [1487]<br>703 | 187 [1655]<br>689 | 208 [1841]<br>675 | 228 [2018]<br>660 | 772                                     |  |
|  | 68 [18] |  | 21 [186]<br>855 | 61 [540]<br>848 | 81 [717]<br>842 | 105 [929]<br>828  | 125 [1106]<br>818 | 143 [1265]<br>807 | 164 [1451]<br>800 | 182 [1611]<br>789 | 204 [1805]<br>776 | 223 [1973]<br>760 | 861                                     |  |
|  | 76 [20] |  | 18 [159]<br>957 | 56 [496]<br>952 | 76 [673]<br>944 | 100 [885]<br>932  | 120 [1062]<br>923 | 138 [1221]<br>912 | 159 [1407]<br>900 | 178 [1575]<br>886 | 199 [1761]<br>872 | 218 [1929]<br>858 | 962                                     |  |
| Rotor Width  |         | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/> |                 |                 |                 |                   |                   |                   |                   |                   |                   |                   |   |  |
| 15.7 [617] mm [in]   |         | Theoretical Torque - Nm [lb-in]  |                 |                 |                 |                   |                   |                   |                   |                   |                   |                   |   |  |
|  |         | 22 [192]   | 43 [384]        | 87 [768]        | 108 [960]       | 130 [1152]        | 152 [1344]        | 174 [1536]        | 195 [1728]        | 217 [1920]        | 239 [2112]        | 260 [2304]        |   |  |
| Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS] |         |  |                 |                 |                 |                   |                   |                   |                   |                   |                   |                   |   |  |

|  |         |  |                 |                 |                  |                   |                   |                   |                   |                   |                   |                   |   |  |
|--|---------|--|-----------------|-----------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---|--|
| <b>090</b>   |         | Pressure - bar [psi]   |                 |                 |                  |                   |                   |                   |                   | Max. Cont.        |                   | Max. Inter.       |   |  |
|  |         | 17 [250]   | 35 [500]        | 69 [1000]       | 86 [1250]        | 104 [1500]        | 121 [1750]        | 138 [2000]        | 155 [2250]        | 172 [2500]        | 190 [2750]        | 207 [3000]        |   |  |
| 88 cm <sup>3</sup> [5.4 in <sup>3</sup> ] / rev                              |         |  |                 |                 |                  |                   |                   |                   |                   |                   |                   |                   | Intermittent Ratings - 10% of Operation |  |
| Flow - lpm [gpm]   |         | Torque - Nm [lb-in], Speed rpm   |                 |                 |                  |                   |                   |                   |                   |                   |                   |                   | Theoretical rpm                         |  |
|  |         | 2 [0.5]  | 18 [159]<br>23  | 40 [354]<br>22  | 75 [664]<br>17   |                   |                   |                   |                   |                   |                   |                   |   |  |
| Max. Cont.   | 4 [1]   | 20 [177]<br>45   | 44 [389]<br>42  | 88 [779]<br>35  | 112 [991]<br>31  | 118 [1044]<br>27  | 128 [1133]<br>21  |                   |                   |                   |                   |                   | 45                                      |  |
|  | 8 [2]   | 22 [195]<br>91   | 44 [389]<br>88  | 87 [770]<br>81  | 114 [1009]<br>77 | 134 [1186]<br>72  | 158 [1398]<br>68  | 175 [1549]<br>60  | 198 [1752]<br>52  | 216 [1912]<br>42  |                   |                   | 91                                      |  |
|  | 15 [4]  | 20 [177]<br>169  | 44 [389]<br>166 | 88 [779]<br>160 | 112 [991]<br>156 | 134 [1186]<br>152 | 154 [1363]<br>146 | 182 [1611]<br>140 | 204 [1805]<br>130 | 222 [1965]<br>122 | 242 [2142]<br>110 | 262 [2319]<br>96  | 170                                     |  |
|  | 23 [6]  | 19 [168]<br>260  | 40 [354]<br>257 | 86 [761]<br>250 | 110 [974]<br>245 | 131 [1159]<br>238 | 152 [1345]<br>232 | 176 [1558]<br>225 | 196 [1735]<br>215 | 218 [1929]<br>205 | 242 [2142]<br>193 | 263 [2327]<br>186 | 260                                     |  |
|  | 30 [8]  | 17 [150]<br>339  | 38 [336]<br>336 | 83 [735]<br>328 | 108 [956]<br>324 | 126 [1115]<br>318 | 150 [1327]<br>308 | 173 [1531]<br>300 | 194 [1717]<br>292 | 216 [1912]<br>280 | 238 [2106]<br>270 | 258 [2283]<br>258 | 340                                     |  |
|  | 38 [10] | 14 [124]<br>430  | 33 [292]<br>429 | 77 [681]<br>426 | 106 [938]<br>424 | 122 [1080]<br>417 | 146 [1292]<br>411 | 170 [1504]<br>402 | 188 [1664]<br>393 | 210 [1858]<br>380 | 232 [2053]<br>366 | 253 [2239]<br>354 | 430                                     |  |
|  | 45 [12] | 9 [80]<br>510  | 30 [265]<br>508 | 73 [646]<br>504 | 103 [912]<br>500 | 120 [1062]<br>496 | 145 [1283]<br>488 | 164 [1451]<br>480 | 184 [1628]<br>472 | 206 [1823]<br>462 | 228 [2018]<br>448 | 246 [2177]<br>434 | 510                                     |  |
|  | 53 [14] | 5 [44]<br>601  | 25 [221]<br>600 | 69 [611]<br>596 | 97 [856]<br>594  | 114 [1009]<br>591 | 140 [1239]<br>586 | 160 [1416]<br>578 | 178 [1575]<br>566 | 202 [1788]<br>552 | 226 [2000]<br>540 | 244 [2159]<br>528 | 601                                     |  |
|  | 61 [16] |  | 20 [177]<br>691 | 66 [584]<br>688 | 90 [797]<br>684  | 109 [965]<br>678  | 134 [1186]<br>670 | 156 [1381]<br>664 | 173 [1531]<br>654 | 200 [1770]<br>642 | 220 [1947]<br>630 | 242 [2142]<br>610 | 692                                     |  |
|  | 68 [18] |  | 16 [142]<br>772 | 63 [558]<br>770 | 84 [743]<br>768  | 105 [929]<br>766  | 128 [1133]<br>764 | 152 [1345]<br>754 | 168 [1487]<br>742 | 193 [1708]<br>722 | 214 [1894]<br>712 | 236 [2088]<br>700 | 772                                     |  |
| 76 [20]  |         | 10 [88]<br>864   | 58 [513]<br>863 | 79 [699]<br>858 | 100 [885]<br>848 | 121 [1071]<br>844 | 148 [1310]<br>835 | 163 [1442]<br>825 | 186 [1646]<br>812 | 205 [1814]<br>800 | 226 [2000]<br>778 | 864               |   |  |
| Rotor Width  |         | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/> |                 |                 |                  |                   |                   |                   |                   |                   |                   |                   |   |  |
| 17.3 [682] mm [in]   |         | Theoretical Torque - Nm [lb-in]  |                 |                 |                  |                   |                   |                   |                   |                   |                   |                   |   |  |
|  |         | 24 [215]   | 49 [429]        | 97 [859]        | 121 [1073]       | 146 [1288]        | 170 [1502]        | 194 [1717]        | 218 [1932]        | 243 [2146]        | 267 [2361]        | 291 [2576]        |   |  |
| Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS] |         |  |                 |                 |                  |                   |                   |                   |                   |                   |                   |                   |   |  |

► Performance data is typical. Performance of production units varies slightly from one motor to another.

**DISPLACEMENT PERFORMANCE**

|  |               | Pressure - bar [psi]   |                 |                 |                   |                   |                   |                   |                   |                   |                   | Max. Cont.        | Max. Inter. |     |
|--|---------------|--|-----------------|-----------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------|-----|
| <b>100</b>                                       |               | 17 [250]   | 35 [500]        | 69 [1000]       | 86 [1250]         | 104 [1500]        | 121 [1750]        | 138 [2000]        | 155 [2250]        | 172 [2500]        | 190 [2750]        | 207 [3000]        |             |     |
| 100 cm <sup>3</sup> [6.1 in <sup>3</sup> ] / rev |               | Intermittent Ratings - 10% of Operation  |                 |                 |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
|  |               | Torque - Nm [lb-in], Speed rpm   |                 |                 |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
| Flow - lpm [gpm]                                 | 2 [0.5]       | 18 [159]<br>17   | 37 [327]<br>13  | 77 [681]<br>12  | 91 [805]<br>11    |                   |                   |                   |                   |                   |                   |                   |             | 20  |
|  | 4 [1]         | 26 [230]<br>38   | 49 [434]<br>37  | 84 [743]<br>33  | 106 [938]<br>31   | 120 [1062]<br>29  | 140 [1239]<br>15  | 160 [1416]<br>7   |                   |                   |                   |                   |             | 40  |
|  | 8 [2]         | 25 [221]<br>80   | 50 [442]<br>78  | 98 [867]<br>75  | 125 [1106]<br>70  | 150 [1327]<br>68  | 175 [1549]<br>65  | 199 [1761]<br>61  | 189 [1673]<br>20  |                   |                   |                   |             | 80  |
|  | 15 [4]        | 26 [230]<br>150  | 46 [407]<br>148 | 97 [858]<br>142 | 124 [1097]<br>139 | 148 [1310]<br>136 | 175 [1549]<br>131 | 198 [1752]<br>128 | 224 [1982]<br>122 | 245 [2168]<br>118 | 267 [2363]<br>111 | 289 [2558]<br>85  |             | 150 |
|  | 23 [6]        | 23 [203]<br>229  | 48 [425]<br>226 | 96 [850]<br>221 | 123 [1088]<br>218 | 148 [1310]<br>215 | 173 [1531]<br>212 | 200 [1770]<br>208 | 223 [1973]<br>201 | 246 [2177]<br>197 | 269 [2381]<br>189 | 286 [2531]<br>162 |             | 230 |
|  | 30 [8]        | 21 [186]<br>296  | 45 [398]<br>292 | 93 [823]<br>285 | 121 [1071]<br>282 | 146 [1292]<br>280 | 168 [1487]<br>280 | 195 [1726]<br>274 | 221 [1956]<br>270 | 244 [2159]<br>265 | 265 [2345]<br>255 | 284 [2513]<br>208 |             | 300 |
|  | 38 [10]       | 17 [150]<br>378  | 41 [363]<br>375 | 91 [805]<br>367 | 115 [1018]<br>370 | 141 [1248]<br>367 | 165 [1460]<br>364 | 189 [1673]<br>363 | 215 [1903]<br>361 | 238 [2106]<br>353 | 264 [2336]<br>338 | 282 [2496]<br>310 |             | 380 |
|  | 45 [12]       | 14 [123]<br>450  | 36 [319]<br>448 | 89 [788]<br>442 | 116 [1027]<br>438 | 140 [1239]<br>433 | 162 [1434]<br>426 | 188 [1664]<br>420 | 210 [1858]<br>412 | 234 [2071]<br>404 | 258 [2283]<br>390 | 280 [2478]<br>355 |             | 450 |
|  | 53 [14]       | 12 [106]<br>528  | 34 [301]<br>526 | 83 [735]<br>520 | 109 [965]<br>518  | 134 [1186]<br>514 | 158 [1389]<br>508 | 181 [1602]<br>500 | 205 [1814]<br>490 | 228 [2017]<br>480 | 256 [2265]<br>468 | 278 [2460]<br>440 |             | 530 |
|  | 61 [16]       | 10 [88]<br>610   | 28 [248]<br>608 | 79 [699]<br>600 | 103 [912]<br>596  | 129 [1142]<br>590 | 152 [1345]<br>582 | 172 [1522]<br>576 | 198 [1752]<br>568 | 223 [1973]<br>556 | 254 [2248]<br>542 | 276 [2443]<br>525 |             | 610 |
| 68 [18]  | 6 [53]<br>680 | 21 [186]<br>677  | 71 [628]<br>666 | 94 [832]<br>660 | 121 [1071]<br>653 | 146 [1292]<br>645 | 169 [1496]<br>635 | 192 [1699]<br>624 | 215 [1903]<br>610 | 251 [2221]<br>594 | 272 [2407]<br>574 |                   | 680         |     |
| 76 [20]  |               | 15 [133]<br>760  | 63 [558]<br>754 | 85 [752]<br>750 | 112 [991]<br>742  | 133 [1177]<br>730 | 160 [1416]<br>715 | 185 [1637]<br>702 | 202 [1788]<br>688 | 248 [2195]<br>666 | 267 [2363]<br>636 |                   | 760         |     |
| Max. Cont.                                       |               | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/> |                 |                 |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
| Max. Inter.                                      |               | Theoretical Torque - Nm [lb-in]  |                 |                 |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
|  |               | 27 [239]   | 56 [496]        | 110 [974]       | 137 [1212]        | 166 [1469]        | 193 [1708]        | 220 [1947]        | 247 [2186]        | 275 [2434]        | 303 [2682]        | 330 [2921]        |             |     |
|  |               | Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]   |                 |                 |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
|  |               | Rotor Width  |                 |                 |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
|  |               | 19.7 [.777]  |                 |                 |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
|  |               | mm [in]  |                 |                 |                   |                   |                   |                   |                   |                   |                   |                   |             |     |

|  |         | Pressure - bar [psi]   |                 |                   |                   |                   |                   |                   |                   |                   |                   | Max. Cont.        | Max. Inter. |     |
|--|---------|--|-----------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------|-----|
| <b>115</b>                                       |         | 17 [250]   | 35 [500]        | 69 [1000]         | 86 [1250]         | 104 [1500]        | 121 [1750]        | 138 [2000]        | 155 [2250]        | 172 [2500]        | 190 [2750]        | 207 [3000]        |             |     |
| 113 cm <sup>3</sup> [6.9 in <sup>3</sup> ] / rev |         | Intermittent Ratings - 10% of Operation  |                 |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
|  |         | Torque - Nm [lb-in], Speed rpm   |                 |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
| Flow - lpm [gpm]                                 | 2 [0.5] | 23 [204]<br>17   | 53 [469]<br>12  |                   |                   |                   |                   |                   |                   |                   |                   |                   |             | 18  |
|  | 4 [1]   | 25 [221]<br>35   | 56 [496]<br>34  | 95 [841]<br>30    | 118 [1044]<br>19  |                   |                   |                   |                   |                   |                   |                   |             | 35  |
|  | 8 [2]   | 25 [221]<br>70   | 59 [522]<br>69  | 117 [1035]<br>65  | 144 [1274]<br>62  | 172 [1522]<br>60  | 202 [1788]<br>56  |                   |                   |                   |                   |                   |             | 71  |
|  | 15 [4]  | 24 [212]<br>130  | 58 [513]<br>129 | 112 [991]<br>127  | 144 [1274]<br>125 | 173 [1531]<br>122 | 202 [1788]<br>117 | 225 [1991]<br>114 | 251 [2221]<br>108 |                   |                   |                   |             | 133 |
|  | 23 [6]  | 22 [195]<br>200  | 51 [451]<br>199 | 111 [982]<br>197  | 140 [1239]<br>194 | 171 [1513]<br>191 | 201 [1779]<br>186 | 224 [1982]<br>183 | 251 [2221]<br>176 | 284 [2513]<br>170 | 307 [2717]<br>153 |                   |             | 204 |
|  | 30 [8]  | 21 [186]<br>264  | 53 [469]<br>262 | 108 [956]<br>258  | 134 [1186]<br>256 | 167 [1478]<br>254 | 196 [1735]<br>251 | 222 [1965]<br>248 | 251 [2221]<br>240 | 278 [2460]<br>232 | 305 [2699]<br>226 | 327 [2894]<br>210 |             | 265 |
|  | 38 [10] | 16 [142]<br>336  | 46 [407]<br>334 | 105 [929]<br>330  | 131 [1159]<br>326 | 164 [1451]<br>323 | 191 [1690]<br>318 | 217 [1920]<br>312 | 247 [2186]<br>306 | 271 [2398]<br>300 | 299 [2646]<br>292 | 327 [2894]<br>281 |             | 336 |
|  | 45 [12] | 12 [106]<br>397  | 43 [381]<br>396 | 101 [894]<br>390  | 132 [1168]<br>387 | 161 [1425]<br>382 | 187 [1655]<br>379 | 218 [1929]<br>371 | 239 [2115]<br>363 | 269 [2381]<br>355 | 290 [2566]<br>344 | 319 [2823]<br>339 |             | 398 |
|  | 53 [14] | 6 [53]<br>468  | 35 [310]<br>464 | 97 [858]<br>456   | 125 [1106]<br>452 | 157 [1389]<br>448 | 179 [1584]<br>444 | 207 [1832]<br>442 | 237 [2097]<br>436 | 259 [2292]<br>430 | 289 [2558]<br>422 | 315 [2788]<br>415 |             | 469 |
|  | 61 [16] |  | 34 [301]<br>539 | 90 [796]<br>534   | 118 [1044]<br>531 | 149 [1319]<br>524 | 174 [1540]<br>521 | 200 [1770]<br>518 | 233 [2062]<br>506 | 254 [2248]<br>498 | 285 [2522]<br>495 | 314 [2779]<br>479 |             | 540 |
| 68 [18]  |         | 29 [257]<br>601  | 84 [743]<br>596 | 114 [1009]<br>594 | 140 [1239]<br>589 | 172 [1522]<br>583 | 202 [1788]<br>572 | 221 [1956]<br>566 | 253 [2239]<br>557 | 282 [2496]<br>547 | 299 [2646]<br>544 |                   | 602         |     |
| 76 [20]  |         | 17 [150]<br>672  | 73 [646]<br>668 | 103 [912]<br>664  | 132 [1168]<br>658 | 161 [1425]<br>655 | 186 [1646]<br>648 | 214 [1894]<br>638 | 240 [2124]<br>627 | 266 [2354]<br>621 | 293 [2593]<br>607 |                   | 673         |     |
| Max. Cont.                                       |         | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/> |                 |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
| Max. Inter.                                      |         | Theoretical Torque - Nm [lb-in]  |                 |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
|  |         | 31 [274]   | 62 [549]        | 124 [1097]        | 155 [1372]        | 186 [1646]        | 217 [1920]        | 248 [2195]        | 279 [2469]        | 310 [2743]        | 341 [3018]        | 372 [3292]        |             |     |
|  |         | Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]   |                 |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
|  |         | Rotor Width  |                 |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
|  |         | 22.1 [.872]  |                 |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
|  |         | mm [in]  |                 |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |

► Performance data is typical. Performance of production units varies slightly from one motor to another.



DISPLACEMENT PERFORMANCE

|                  |            |  |                  |                   |                   |                   |                   |                   |                   |                   |                   |   |                   |    |                 |     |
|------------------|------------|--|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---|-------------------|----|-----------------|-----|
| <b>130</b>       |            | Pressure - bar [psi]   |                  |                   |                   |                   |                   |                   |                   | Max. Cont.        |                   | Max. Inter.                             |                   |    |                 |     |
|                  |            | 17 [250]   | 35 [500]         | 69 [1000]         | 86 [1250]         | 104 [1500]        | 121 [1750]        | 138 [2000]        | 155 [2250]        | 172 [2500]        | 190 [2750]        | 207 [3000]                              |                   |    |                 |     |
|                  |            | 129 cm <sup>3</sup> [7.9 in <sup>3</sup> ] / rev   |                  |                   |                   |                   |                   |                   |                   |                   |                   | Intermittent Ratings - 10% of Operation |                   |    |                 |     |
|                  |            | Torque - Nm [lb-in], Speed rpm   |                  |                   |                   |                   |                   |                   |                   |                   |                   |   |                   |    |                 |     |
| Flow - lpm [gpm] | Max. Cont. | 2 [0.5]  | 34 [301]<br>15   | 60 [531]<br>6     |                   |                   |                   |                   |                   |                   |                   |   |                   | 15 | Theoretical rpm |     |
|                  |            | 4 [1]  | 32 [283]<br>30   | 64 [566]<br>29    | 124 [1097]<br>18  | 140 [1239]<br>10  | 185 [1637]<br>6   |                   |                   |                   |                   |   |                   | 30 |                 |     |
|                  |            | 8 [2]  | 31 [274]<br>59   | 65 [575]<br>58    | 126 [1115]<br>51  | 144 [1274]<br>46  | 198 [1752]<br>38  | 223 [1974]<br>32  | 248 [2195]<br>25  |                   |                   |   |                   |    |                 | 59  |
|                  |            | 15 [4]   | 31 [274]<br>115  | 66 [584]<br>112   | 130 [1151]<br>106 | 164 [1451]<br>102 | 195 [1726]<br>97  | 221 [1956]<br>92  | 255 [2257]<br>86  | 285 [2522]<br>80  | 312 [2761]<br>74  | 345 [3053]<br>66                        |                   |    |                 | 118 |
|                  |            | 23 [6]   | 30 [266]<br>177  | 65 [575]<br>175   | 130 [1151]<br>167 | 162 [1434]<br>163 | 196 [1735]<br>157 | 230 [2036]<br>152 | 265 [2345]<br>142 | 289 [2558]<br>138 | 316 [2797]<br>132 | 352 [3115]<br>121                       | 375 [3319]<br>114 |    |                 | 177 |
|                  |            | 30 [8]   | 28 [248]<br>232  | 64 [566]<br>227   | 128 [1133]<br>218 | 157 [1389]<br>213 | 192 [1699]<br>208 | 223 [1974]<br>200 | 259 [2292]<br>189 | 284 [2513]<br>184 | 313 [2770]<br>176 | 343 [3036]<br>168                       | 374 [3310]<br>162 |    |                 | 235 |
|                  |            | 38 [10]  | 20 [177]<br>294  | 60 [531]<br>289   | 125 [1106]<br>280 | 157 [1389]<br>275 | 188 [1664]<br>268 | 222 [1965]<br>260 | 254 [2248]<br>251 | 282 [2496]<br>243 | 313 [2770]<br>234 | 349 [3089]<br>221                       | 370 [3275]<br>214 |    |                 | 294 |
|                  |            | 45 [12]  | 15 [133]<br>353  | 55 [487]<br>351   | 120 [1062]<br>343 | 152 [1345]<br>338 | 186 [1646]<br>331 | 216 [1912]<br>321 | 244 [2159]<br>311 | 281 [2487]<br>299 | 307 [2717]<br>289 | 341 [3018]<br>277                       | 369 [3266]<br>264 |    |                 | 353 |
|                  |            | 53 [14]  | 13 [115]<br>411  | 47 [416]<br>408   | 117 [1035]<br>398 | 150 [1328]<br>392 | 181 [1602]<br>386 | 212 [1876]<br>378 | 247 [2186]<br>366 | 273 [2416]<br>357 | 310 [2744]<br>347 | 335 [2965]<br>335                       | 363 [3213]<br>325 |    |                 | 411 |
|                  |            | 61 [16]  | 7 [62]<br>472    | 42 [372]<br>470   | 106 [938]<br>465  | 140 [1239]<br>462 | 170 [1505]<br>456 | 207 [1832]<br>447 | 239 [2115]<br>435 | 265 [2345]<br>426 | 296 [2620]<br>409 | 328 [2903]<br>396                       | 361 [3195]<br>388 |    |                 | 472 |
| 68 [18]          |            | 36 [319]<br>529  | 102 [903]<br>522 | 132 [1168]<br>517 | 166 [1469]<br>507 | 198 [1752]<br>500 | 224 [1982]<br>489 | 262 [2319]<br>482 | 292 [2584]<br>468 | 323 [2859]<br>445 | 351 [3106]<br>430 |   | 529               |    |                 |     |
| 76 [20]          |            | 32 [283]<br>588  | 94 [832]<br>585  | 123 [1089]<br>580 | 158 [1398]<br>570 | 190 [1682]<br>562 | 219 [1938]<br>550 | 254 [2248]<br>535 | 282 [2496]<br>520 | 308 [2726]<br>510 | 347 [3071]<br>490 |   | 588               |    |                 |     |
|                  |            | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/> |                  |                   |                   |                   |                   |                   |                   |                   |                   |   |                   |    |                 |     |
|                  |            | Theoretical Torque - Nm [lb-in]  |                  |                   |                   |                   |                   |                   |                   |                   |                   |   |                   |    |                 |     |
|                  |            | 25.4 [1.002]   |                  |                   |                   |                   |                   |                   |                   |                   |                   |   |                   |    |                 |     |
|                  |            | mm [in]  |                  |                   |                   |                   |                   |                   |                   |                   |                   |   |                   |    |                 |     |
|                  |            | Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]   |                  |                   |                   |                   |                   |                   |                   |                   |                   |   |                   |    |                 |     |

|                  |            |  |                   |                   |                   |                   |                   |                   |                   |                   |                   |   |                   |    |                 |     |
|------------------|------------|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---|-------------------|----|-----------------|-----|
| <b>160</b>       |            | Pressure - bar [psi]   |                   |                   |                   |                   |                   |                   |                   | Max. Cont.        |                   | Max. Inter.                             |                   |    |                 |     |
|                  |            | 17 [250]   | 35 [500]          | 69 [1000]         | 86 [1250]         | 104 [1500]        | 121 [1750]        | 138 [2000]        | 155 [2250]        | 172 [2500]        | 190 [2750]        | 207 [3000]                              |                   |    |                 |     |
|                  |            | 160 cm <sup>3</sup> [9.8 in <sup>3</sup> ] / rev   |                   |                   |                   |                   |                   |                   |                   |                   |                   | Intermittent Ratings - 10% of Operation |                   |    |                 |     |
|                  |            | Torque - Nm [lb-in], Speed rpm   |                   |                   |                   |                   |                   |                   |                   |                   |                   |   |                   |    |                 |     |
| Flow - lpm [gpm] | Max. Cont. | 2 [0.5]  | 30 [266]<br>12    | 66 [584]<br>11    | 109 [965]<br>5    |                   |                   |                   |                   |                   |                   |   |                   | 13 | Theoretical rpm |     |
|                  |            | 4 [1]  | 32 [283]<br>24    | 70 [620]<br>23    | 136 [1204]<br>21  | 164 [1451]<br>20  | 182 [1611]<br>14  | 250 [2213]<br>6   |                   |                   |                   |   |                   | 25 |                 |     |
|                  |            | 8 [2]  | 38 [336]<br>48    | 76 [673]<br>47    | 157 [1389]<br>42  | 181 [1602]<br>38  | 202 [1788]<br>34  | 265 [2345]<br>28  | 290 [2567]<br>22  |                   |                   |   |                   | 50 |                 |     |
|                  |            | 15 [4]   | 39 [345]<br>92    | 78 [690]<br>89    | 166 [1469]<br>84  | 205 [1814]<br>82  | 242 [2142]<br>77  | 275 [2434]<br>73  | 317 [2805]<br>70  | 358 [3169]<br>67  | 400 [3540]<br>62  |   |                   | 94 |                 |     |
|                  |            | 23 [6]   | 40 [354]<br>140   | 79 [699]<br>137   | 160 [1416]<br>132 | 203 [1797]<br>128 | 246 [2177]<br>123 | 290 [2567]<br>118 | 320 [2832]<br>114 | 354 [3133]<br>110 | 396 [3505]<br>106 | 404 [3575]<br>100                       | 440 [3894]<br>94  |    |                 | 144 |
|                  |            | 30 [8]   | 34 [301]<br>184   | 73 [646]<br>178   | 164 [1451]<br>172 | 200 [1770]<br>170 | 245 [2168]<br>164 | 288 [2549]<br>160 | 316 [2797]<br>152 | 350 [3098]<br>147 | 388 [3434]<br>142 | 428 [3788]<br>134                       | 448 [3965]<br>129 |    |                 | 188 |
|                  |            | 38 [10]  | 32 [283]<br>235   | 72 [637]<br>230   | 156 [1381]<br>222 | 196 [1735]<br>218 | 240 [2124]<br>212 | 282 [2496]<br>208 | 312 [2761]<br>200 | 347 [3071]<br>192 | 389 [3443]<br>184 | 422 [3735]<br>178                       | 454 [4018]<br>172 |    |                 | 238 |
|                  |            | 45 [12]  | 24 [212]<br>278   | 70 [620]<br>272   | 151 [1336]<br>264 | 192 [1699]<br>259 | 236 [2089]<br>253 | 278 [2460]<br>247 | 310 [2744]<br>242 | 344 [3044]<br>235 | 382 [3381]<br>227 | 419 [3708]<br>216                       | 450 [3983]<br>210 |    |                 | 281 |
|                  |            | 53 [14]  | 20 [177]<br>327   | 60 [531]<br>322   | 144 [1274]<br>312 | 186 [1646]<br>306 | 232 [2053]<br>300 | 266 [2354]<br>295 | 306 [2708]<br>289 | 338 [2991]<br>281 | 374 [3310]<br>276 | 420 [3717]<br>267                       | 448 [3965]<br>258 |    |                 | 331 |
|                  |            | 61 [16]  | 12 [106]<br>379   | 52 [460]<br>374   | 134 [1186]<br>360 | 178 [1575]<br>355 | 218 [1929]<br>350 | 254 [2248]<br>342 | 297 [2628]<br>338 | 334 [2956]<br>333 | 371 [3283]<br>323 | 401 [3549]<br>316                       | 442 [3912]<br>308 |    |                 | 381 |
| 68 [18]          |            | 46 [407]<br>420  | 130 [1151]<br>409 | 171 [1513]<br>400 | 215 [1903]<br>394 | 248 [2195]<br>387 | 291 [2575]<br>380 | 326 [2885]<br>374 | 361 [3195]<br>368 | 393 [3478]<br>358 | 428 [3788]<br>346 |   | 425               |    |                 |     |
| 76 [20]          |            | 38 [336]<br>469  | 120 [1062]<br>453 | 162 [1434]<br>448 | 199 [1760]<br>442 | 240 [2124]<br>435 | 278 [2460]<br>428 | 324 [2867]<br>421 | 357 [3159]<br>412 | 390 [3452]<br>401 | 425 [3761]<br>392 |   | 475               |    |                 |     |
|                  |            | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/> |                   |                   |                   |                   |                   |                   |                   |                   |                   |   |                   |    |                 |     |
|                  |            | Theoretical Torque - Nm [lb-in]  |                   |                   |                   |                   |                   |                   |                   |                   |                   |   |                   |    |                 |     |
|                  |            | 31.8 [1.252]   |                   |                   |                   |                   |                   |                   |                   |                   |                   |   |                   |    |                 |     |
|                  |            | mm [in]  |                   |                   |                   |                   |                   |                   |                   |                   |                   |   |                   |    |                 |     |
|                  |            | Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]   |                   |                   |                   |                   |                   |                   |                   |                   |                   |   |                   |    |                 |     |

► Performance data is typical. Performance of production units varies slightly from one motor to another.

**DISPLACEMENT PERFORMANCE**

|  |             |   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
|--|-------------|---|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------|-----|
| <b>200</b>   |             | Pressure - bar [psi]  |                   |                   |                   |                   |                   |                   |                   |                   |                   | Max. Cont.        |                   | Max. Inter. |     |
|  |             | 17 [250]  | 35 [500]          | 69 [1000]         | 86 [1250]         | 104 [1500]        | 121 [1750]        | 138 [2000]        | 155 [2250]        | 172 [2500]        | 190 [2750]        | 207 [3000]        |                   |             |     |
| 198 cm <sup>3</sup> [12.1 in <sup>3</sup> ] / rev                            |             |   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
| Torque - Nm [lb-in], Speed rpm   |             |   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
| Flow - lpm [gpm]   | Max. Cont.  | 2 [0.5]   | 38 [336]<br>10    | 87 [770]<br>8     | 172 [1522]<br>6   | 201 [1779]<br>5   |                   |                   |                   |                   |                   |                   |                   |             | 10  |
|  |             | 4 [1]   | 47 [416]<br>20    | 103 [912]<br>19   | 164 [1451]<br>14  | 201 [1779]<br>12  | 244 [2159]<br>9   | 295 [2611]<br>6   | 328 [2903]<br>3   |                   |                   |                   |                   |             | 20  |
|  |             | 8 [2]   | 46 [407]<br>39    | 96 [850]<br>38    | 192 [1699]<br>36  | 241 [2133]<br>35  | 286 [2531]<br>34  | 330 [2920]<br>28  | 372 [3292]<br>25  | 417 [3690]<br>22  | 428 [3788]<br>17  |                   |                   |             | 40  |
|  |             | 15 [4]  | 44 [389]<br>75    | 95 [841]<br>73    | 194 [1717]<br>70  | 241 [2133]<br>68  | 286 [2531]<br>65  | 333 [2947]<br>63  | 376 [3319]<br>59  | 419 [3708]<br>57  | 461 [4080]<br>52  | 498 [4407]<br>50  | 544 [4814]<br>40  |             | 76  |
|  |             | 23 [6]  | 40 [354]<br>113   | 92 [814]<br>111   | 192 [1699]<br>109 | 240 [2124]<br>106 | 288 [2549]<br>103 | 333 [2947]<br>99  | 375 [3319]<br>96  | 421 [3726]<br>94  | 461 [4080]<br>89  | 505 [4469]<br>84  | 544 [4814]<br>78  |             | 116 |
|  |             | 30 [8]  | 33 [292]<br>150   | 87 [770]<br>147   | 187 [1655]<br>142 | 236 [2088]<br>140 | 284 [2513]<br>135 | 330 [2920]<br>131 | 374 [3327]<br>126 | 421 [3726]<br>124 | 462 [4088]<br>117 | 504 [4460]<br>112 | 542 [4796]<br>106 |             | 152 |
|  |             | 38 [10]   | 23 [204]<br>192   | 80 [708]<br>190   | 180 [1593]<br>185 | 230 [2035]<br>182 | 278 [2460]<br>177 | 325 [2876]<br>172 | 371 [3283]<br>167 | 415 [3673]<br>160 | 459 [4062]<br>154 | 498 [4407]<br>146 | 540 [4779]<br>140 |             | 192 |
|  |             | 45 [12]   | 21 [186]<br>227   | 73 [646]<br>226   | 173 [1531]<br>221 | 223 [1973]<br>219 | 271 [2398]<br>212 | 318 [2814]<br>207 | 364 [3221]<br>201 | 409 [3619]<br>194 | 453 [4009]<br>186 | 491 [4345]<br>179 | 533 [4717]<br>174 |             | 227 |
|  |             | 53 [14]   | 10 [88]<br>268    | 64 [566]<br>266   | 165 [1460]<br>260 | 214 [1894]<br>256 | 262 [2319]<br>251 | 309 [2735]<br>245 | 356 [3150]<br>240 | 400 [3540]<br>233 | 444 [3929]<br>227 | 483 [4274]<br>217 | 525 [4646]<br>210 |             | 268 |
|  |             | 61 [16]   |                   | 55 [487]<br>308   | 155 [1372]<br>300 | 204 [1805]<br>298 | 253 [2239]<br>291 | 300 [2655]<br>286 | 346 [3062]<br>279 | 391 [3460]<br>271 | 434 [3841]<br>264 | 472 [4177]<br>255 | 514 [4549]<br>248 |             | 308 |
| 68 [18]  |             | 46 [407]<br>343   | 143 [1265]<br>332 | 191 [1690]<br>330 | 240 [2124]<br>322 | 287 [2540]<br>316 | 332 [2938]<br>310 | 377 [3336]<br>302 | 420 [3717]<br>296 | 457 [4044]<br>286 | 484 [4283]<br>276 |                   | 343               |             |     |
| 76 [20]  |             | 30 [265]<br>384   | 130 [1150]<br>374 | 179 [1584]<br>367 | 227 [2009]<br>363 | 275 [2434]<br>355 | 321 [2841]<br>349 | 365 [3230]<br>343 | 409 [3619]<br>333 | 430 [3805]<br>324 | 468 [4142]<br>314 |                   | 384               |             |     |
|  | Max. Inter. |   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
| <b>Rotor Width</b>   |             | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input checked="" type="checkbox"/> |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
| 39.4 [1.553]   |             | Theoretical Torque - Nm [lb-in]   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
| mm [in]  |             | 54 [481]  | 109 [963]         | 218 [1929]        | 272 [2407]        | 326 [2888]        | 381 [3369]        | 435 [3850]        | 489 [4332]        | 544 [4813]        | 598 [5294]        | 653 [5776]        |                   |             |     |
| Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS] |             |   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |

|  |             |   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
|--|-------------|---|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------|-----|
| <b>240</b>   |             | Pressure - bar [psi]  |                   |                   |                   |                   |                   |                   |                   |                   |                   | Max. Cont.        |                   | Max. Inter. |     |
|  |             | 17 [250]  | 35 [500]          | 69 [1000]         | 86 [1250]         | 104 [1500]        | 121 [1750]        | 138 [2000]        | 155 [2250]        | 172 [2500]        | 190 [2750]        | 207 [3000]        |                   |             |     |
| 236 cm <sup>3</sup> [14.4 in <sup>3</sup> ] / rev                            |             |   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
| Torque - Nm [lb-in], Speed rpm   |             |   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
| Flow - lpm [gpm]   | Max. Cont.  | 2 [0.5]   | 47 [416]<br>7     | 98 [867]<br>6     | 197 [1743]<br>3   | 247 [2186]<br>3   |                   |                   |                   |                   |                   |                   |                   |             | 8   |
|  |             | 4 [1]   | 50 [443]<br>14    | 105 [929]<br>13   | 210 [1859]<br>11  | 260 [2301]<br>9   | 310 [2717]<br>7   | 354 [3133]<br>4   | 404 [3575]<br>4   |                   |                   |                   |                   | 16          |     |
|  |             | 8 [2]   | 53 [469]<br>29    | 111 [982]<br>28   | 224 [1982]<br>26  | 277 [2451]<br>24  | 329 [2894]<br>21  | 377 [3336]<br>19  | 424 [3752]<br>16  | 469 [4151]<br>11  | 511 [4522]<br>8   | 582 [5151]<br>8   |                   | 32          |     |
|  |             | 15 [4]  | 52 [460]<br>60    | 114 [1000]<br>59  | 236 [2062]<br>56  | 290 [2575]<br>53  | 346 [3062]<br>50  | 399 [3531]<br>47  | 449 [3974]<br>44  | 496 [4390]<br>40  | 541 [4788]<br>36  | 598 [5292]<br>33  | 638 [5646]<br>28  |             | 63  |
|  |             | 23 [6]  | 47 [416]<br>93    | 109 [956]<br>91   | 227 [2009]<br>88  | 285 [2522]<br>85  | 342 [3027]<br>81  | 397 [3513]<br>77  | 449 [3974]<br>71  | 500 [4425]<br>66  | 548 [4850]<br>60  | 595 [5266]<br>55  | 642 [5682]<br>52  |             | 95  |
|  |             | 30 [8]  | 42 [372]<br>125   | 104 [903]<br>123  | 221 [1956]<br>119 | 280 [2469]<br>116 | 336 [2974]<br>111 | 391 [3460]<br>106 | 445 [3938]<br>100 | 497 [4398]<br>93  | 547 [4841]<br>87  | 592 [5248]<br>79  | 640 [5664]<br>73  |             | 126 |
|  |             | 38 [10]   | 35 [310]<br>158   | 95 [832]<br>155   | 213 [1885]<br>150 | 272 [2398]<br>147 | 328 [2903]<br>142 | 384 [3398]<br>137 | 437 [3867]<br>131 | 489 [4328]<br>123 | 541 [4788]<br>115 | 587 [5195]<br>106 | 635 [5620]<br>99  |             | 158 |
|  |             | 45 [12]   | 23 [204]<br>189   | 85 [752]<br>186   | 203 [1797]<br>182 | 262 [2319]<br>178 | 319 [2823]<br>174 | 375 [3319]<br>168 | 428 [3788]<br>160 | 480 [4248]<br>153 | 531 [4699]<br>145 | 575 [5089]<br>134 | 623 [5514]<br>125 |             | 189 |
|  |             | 53 [14]   |                   | 75 [655]<br>218   | 192 [1699]<br>214 | 250 [2213]<br>210 | 308 [2726]<br>205 | 365 [3310]<br>201 | 418 [3699]<br>191 | 470 [4160]<br>183 | 520 [4602]<br>174 | 564 [4991]<br>164 | 611 [5407]<br>154 |             | 220 |
|  |             | 61 [16]   |                   | 68 [593]<br>249   | 180 [1593]<br>245 | 238 [2106]<br>242 | 295 [2611]<br>236 | 350 [3106]<br>230 | 405 [3584]<br>222 | 458 [4053]<br>215 | 510 [4496]<br>205 | 551 [4876]<br>195 | 600 [5310]<br>184 |             | 252 |
| 68 [18]  |             | 56 [487]<br>279   | 165 [1460]<br>273 | 221 [1956]<br>270 | 281 [2469]<br>267 | 335 [2965]<br>260 | 388 [3434]<br>251 | 440 [3894]<br>241 | 490 [4337]<br>231 | 545 [4797]<br>221 | 590 [5222]<br>208 |                   | 283               |             |     |
| 76 [20]  |             | 40 [354]<br>315   | 154 [1345]<br>307 | 210 [1841]<br>303 | 264 [2336]<br>295 | 320 [2832]<br>290 | 376 [3310]<br>282 | 428 [3770]<br>272 | 480 [4221]<br>261 | 530 [4691]<br>250 | 580 [5133]<br>238 |                   | 315               |             |     |
|  | Max. Inter. |   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
| <b>Rotor Width</b>   |             | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input checked="" type="checkbox"/> |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
| 47.4 [1.865]   |             | Theoretical Torque - Nm [lb-in]   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |
| mm [in]  |             | 66 [584]  | 132 [1168]        | 265 [2345]        | 331 [2929]        | 397 [3513]        | 463 [4097]        | 529 [4681]        | 595 [5265]        | 661 [5850]        | 728 [6442]        | 794 [7027]        |                   |             |     |
| Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS] |             |   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |             |     |

► Performance data is typical. Performance of production units varies slightly from one motor to another.





DISPLACEMENT PERFORMANCE

|   |         |  |                  |                   |                   |                   |                   |                   |                   |                   |                   |   |     |                 |
|---|---------|--|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---|-----|-----------------|
|   |         | Pressure - bar [psi]   |                  |                   |                   |                   |                   |                   |                   | Max. Cont.        |                   | Max. Inter.                             |     |                 |
| <b>250</b>  |         | 17 [250]   | 35 [500]         | 69 [1000]         | 86 [1250]         | 104 [1500]        | 121 [1750]        | 138 [2000]        | 155 [2250]        | 172 [2500]        | 190 [2750]        | 207 [3000]                              |     |                 |
| 250 cm <sup>3</sup> [15.3 in <sup>3</sup> ] / rev |         |  |                  |                   |                   |                   |                   |                   |                   |                   |                   | Intermittent Ratings - 10% of Operation |     |                 |
|   |         | Torque - Nm [lb-in], Speed rpm   |                  |                   |                   |                   |                   |                   |                   |                   |                   |   |     |                 |
| Flow - lpm [gpm]                                  | 8 [2]   | 49 [434]<br>31   | 112 [991]<br>31  |                   |                   |                   |                   |                   |                   |                   |                   |   | 32  | Theoretical rpm |
|   | 15 [4]  | 49 [434]<br>59   | 115 [1018]<br>60 | 237 [2097]<br>56  | 295 [2611]<br>53  | 356 [3150]<br>48  |                   |                   |                   |                   |                   |   | 60  |                 |
| Max. Cont.  | 23 [6]  | 45 [398]<br>91   | 112 [991]<br>90  | 233 [2062]<br>88  | 301 [2664]<br>85  | 360 [3186]<br>81  | 418 [3699]<br>74  | 471 [4168]<br>69  | 521 [4611]<br>64  | 561 [4965]<br>61  |                   |   | 92  |                 |
|   | 30 [8]  | 41 [363]<br>119  | 107 [947]<br>118 | 235 [2080]<br>116 | 285 [2522]<br>113 | 352 [3115]<br>107 | 399 [3531]<br>103 | 441 [3903]<br>99  | 511 [4522]<br>92  | 559 [4947]<br>87  | 598 [5292]<br>84  | 624 [5522]<br>82                        | 120 |                 |
| Max. Inter.                                       | 38 [10] | 33 [292]<br>151  | 97 [858]<br>150  | 219 [1938]<br>148 | 273 [2416]<br>144 | 330 [2920]<br>139 | 390 [3451]<br>134 | 434 [3841]<br>132 | 484 [4283]<br>129 | 529 [4681]<br>124 | 578 [5115]<br>119 | 618 [5469]<br>116                       | 152 |                 |
|   | 45 [12] | 22 [195]<br>179  | 81 [717]<br>179  | 198 [1752]<br>178 | 254 [2248]<br>177 | 312 [2761]<br>174 | 368 [3257]<br>168 | 410 [3628]<br>163 | 474 [4195]<br>158 | 500 [4425]<br>156 | 588 [5204]<br>148 | 605 [5354]<br>148                       | 180 |                 |
| Max. Cont.  | 53 [14] | 14 [124]<br>211  | 75 [664]<br>210  | 196 [1735]<br>205 | 249 [2204]<br>201 | 307 [2717]<br>193 | 357 [3159]<br>188 | 414 [3664]<br>180 | 467 [4133]<br>171 | 512 [4531]<br>162 | 561 [4965]<br>158 | 610 [5398]<br>150                       | 212 |                 |
|   | 61 [16] |  | 62 [549]<br>250  | 178 [1575]<br>241 | 235 [2080]<br>234 | 292 [2584]<br>231 | 347 [3071]<br>223 | 400 [3540]<br>214 | 454 [4020]<br>211 | 501 [4434]<br>201 | 543 [4805]<br>193 | 602 [5327]<br>185                       | 244 |                 |
| Max. Inter.                                       | 68 [18] |  | 50 [442]<br>271  | 160 [1416]<br>268 | 223 [1973]<br>263 | 276 [2442]<br>255 | 335 [2965]<br>244 | 386 [3416]<br>232 | 442 [3912]<br>221 | 490 [4336]<br>210 | 530 [4690]<br>200 | 590 [5221]<br>192                       | 272 |                 |
|   | 76 [20] |  | 38 [336]<br>300  | 142 [1257]<br>296 | 210 [1858]<br>290 | 260 [2301]<br>281 | 324 [2867]<br>273 | 372 [3292]<br>263 | 430 [3805]<br>252 | 478 [4230]<br>242 | 514 [4549]<br>230 | 580 [2133]<br>220                       | 304 |                 |
| Rotor Width                                       |         | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/> |                  |                   |                   |                   |                   |                   |                   |                   |                   |   |     |                 |
| 49.2 [1.938]                                      |         | Theoretical Torque - Nm [lb-in]  |                  |                   |                   |                   |                   |                   |                   |                   |                   |   |     |                 |
| mm [in]   |         | 69 [608]   | 137 [1215]       | 275 [2431]        | 343 [3039]        | 412 [3646]        | 481 [4254]        | 549 [4862]        | 618 [5469]        | 687 [6077]        | 755 [6685]        | 824 [7292]                              |     |                 |

Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

|   |         |  |                   |                   |                   |                   |                   |                   |                   |                   |                   |   |     |                 |
|---|---------|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---|-----|-----------------|
|   |         | Pressure - bar [psi]   |                   |                   |                   |                   |                   |                   |                   | Max. Cont.        |                   | Max. Inter.                             |     |                 |
| <b>290</b>  |         | 17 [250]   | 35 [500]          | 52 [750]          | 69 [1000]         | 86 [1250]         | 104 [1500]        | 121 [1750]        | 138 [2000]        | 155 [2250]        | 172 [2500]        | 190 [2750]                              |     |                 |
| 291 cm <sup>3</sup> [17.8 in <sup>3</sup> ] / rev |         |  |                   |                   |                   |                   |                   |                   |                   |                   |                   | Intermittent Ratings - 10% of Operation |     |                 |
|   |         | Torque - Nm [lb-in], Speed rpm   |                   |                   |                   |                   |                   |                   |                   |                   |                   |   |     |                 |
| Flow - lpm [gpm]                                  | 2 [0.5] | 60 [531]<br>7  | 115 [1018]<br>6   | 185 [1637]<br>5   | 260 [2301]<br>4   | 292 [2584]<br>3   |                   |                   |                   |                   |                   |   | 7   | Theoretical rpm |
|   | 4 [1]   | 62 [549]<br>13   | 122 [1080]<br>12  | 187 [1655]<br>10  | 265 [2345]<br>8   | 304 [2690]<br>6   | 365 [2330]<br>4   |                   |                   |                   |                   |   | 14  |                 |
| Max. Cont.  | 8 [2]   | 60 [531]<br>26   | 128 [1133]<br>24  | 190 [1682]<br>22  | 272 [2407]<br>20  | 325 [2876]<br>18  | 372 [3292]<br>15  | 456 [4036]<br>12  | 512 [4531]<br>8   | 570 [5045]<br>4   |                   |   | 27  |                 |
|   | 15 [4]  | 58 [513]<br>50   | 133 [1177]<br>49  | 195 [1726]<br>46  | 270 [2390]<br>44  | 328 [2903]<br>40  | 376 [3328]<br>36  | 458 [4053]<br>32  | 522 [4620]<br>24  | 574 [5080]<br>16  | 630 [5576]<br>9   | 664 [5876]<br>3                         | 52  |                 |
| Max. Inter.                                       | 23 [6]  | 56 [496]<br>76   | 124 [1097]<br>74  | 200 [1770]<br>71  | 268 [2372]<br>68  | 331 [2929]<br>64  | 396 [3505]<br>61  | 462 [4089]<br>57  | 525 [4646]<br>55  | 566 [5009]<br>52  | 625 [5531]<br>48  | 660 [5841]<br>40                        | 79  |                 |
|   | 30 [8]  | 50 [442]<br>100  | 120 [1062]<br>96  | 197 [1743]<br>90  | 264 [2336]<br>85  | 326 [2885]<br>80  | 394 [3487]<br>76  | 465 [4115]<br>72  | 526 [4655]<br>70  | 568 [5027]<br>68  | 620 [5487]<br>65  | 655 [5797]<br>62                        | 103 |                 |
| Max. Cont.  | 38 [10] | 45 [398]<br>129  | 114 [1009]<br>126 | 190 [1682]<br>122 | 258 [2283]<br>118 | 320 [2832]<br>116 | 392 [3469]<br>112 | 460 [4071]<br>106 | 521 [4611]<br>100 | 559 [4947]<br>92  | 615 [5443]<br>82  | 645 [5708]<br>74                        | 130 |                 |
|   | 45 [12] | 38 [336]<br>153  | 104 [920]<br>150  | 180 [1593]<br>146 | 252 [2230]<br>142 | 314 [2779]<br>138 | 390 [3452]<br>133 | 458 [4053]<br>127 | 511 [4522]<br>120 | 550 [4868]<br>106 | 610 [5399]<br>100 | 636 [5629]<br>95                        | 155 |                 |
| Max. Inter.                                       | 53 [14] | 25 [221]<br>182  | 93 [823]<br>174   | 170 [1505]<br>166 | 236 [2089]<br>158 | 306 [2708]<br>150 | 382 [3381]<br>142 | 452 [4000]<br>134 | 500 [4425]<br>128 | 542 [4797]<br>122 | 606 [5363]<br>118 | 625 [5531]<br>114                       | 182 |                 |
|   | 61 [16] | 12 [106]<br>210  | 82 [726]<br>202   | 155 [1372]<br>193 | 225 [1991]<br>184 | 294 [2602]<br>175 | 375 [3319]<br>166 | 445 [3938]<br>160 | 488 [4319]<br>152 | 535 [4735]<br>145 | 595 [5266]<br>140 | 615 [5443]<br>136                       | 210 |                 |
| Max. Cont.  | 68 [18] |  | 66 [581]<br>230   | 140 [1239]<br>226 | 218 [1929]<br>218 | 280 [2478]<br>210 | 365 [3230]<br>202 | 435 [3850]<br>192 | 479 [4239]<br>182 | 526 [4655]<br>174 | 588 [5204]<br>164 | 604 [5345]<br>158                       | 234 |                 |
|   | 76 [20] |  | 55 [487]<br>256   | 128 [1133]<br>246 | 198 [1752]<br>237 | 270 [2390]<br>226 | 350 [3098]<br>216 | 426 [3770]<br>206 | 468 [4142]<br>198 | 514 [4549]<br>190 | 574 [5080]<br>185 | 588 [5204]<br>180                       | 261 |                 |
| Rotor Width                                       |         | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/> |                   |                   |                   |                   |                   |                   |                   |                   |                   |   |     |                 |
| 57.2 [2.252]                                      |         | Theoretical Torque - Nm [lb-in]  |                   |                   |                   |                   |                   |                   |                   |                   |                   |   |     |                 |
| mm [in]   |         | 80 [707]   | 160 [1415]        | 240 [2122]        | 320 [2829]        | 400 [3537]        | 480 [4244]        | 560 [4952]        | 639 [5659]        | 719 [6366]        | 799 [7074]        | 879 [7781]                              |     |                 |

Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]

► Performance data is typical. Performance of production units varies slightly from one motor to another.



**DISPLACEMENT PERFORMANCE**

|  |            |                                       |                 |  |                   |                   |                   |                   |                   |                   |                   |                   |             |                 |  |   |     |
|--|------------|---------------------------------------|-----------------|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------|-----------------|--|---|-----|
| <b>320</b>   |            | Pressure - bar [psi]                  |                 |  |                   |                   |                   |                   |                   | Max. Cont.        |                   |                   | Max. Inter. |                 |  |   |     |
|  |            | 17 [250]                              | 35 [500]        | 52 [750]   | 69 [1000]         | 86 [1250]         | 104 [1500]        | 121 [1750]        | 138 [2000]        | 155 [2250]        | 172 [2500]        |                   |             |                 |  |   |     |
| 322 cm <sup>3</sup> [19.6 in <sup>3</sup> ] / rev                            |            |                                       |                 |  |                   |                   |                   |                   |                   |                   |                   |                   |             |                 |  |   |     |
| <b>Intermittent Ratings - 10% of Operation</b>                               |            |                                       |                 |  |                   |                   |                   |                   |                   |                   |                   |                   |             |                 |  |   |     |
| Flow - lpm [gpm]   | Max. Cont. | Torque - Nm [lb-in], <b>Speed rpm</b> |                 |  |                   |                   |                   |                   |                   |                   |                   |                   |             | Theoretical rpm |  |   |     |
|  |            | 2 [0.5]                               | 60 [531]<br>6   | 134 [1186]<br>5  | 189 [1673]<br>5   | 238 [2106]<br>4   |                   |                   |                   |                   |                   |                   |             |                 |  | 6 |     |
|  |            | 4 [1]                                 | 70 [619]<br>12  | 140 [1239]<br>11   | 239 [2115]<br>10  | 276 [2442]<br>9   | 324 [2867]<br>6   | 393 [3478]<br>4   | 403 [3566]<br>2   |                   |                   |                   |             |                 |  |   | 12  |
|  |            | 8 [2]                                 | 73 [646]<br>24  | 154 [1363]<br>22   | 233 [2062]<br>20  | 291 [2575]<br>19  | 333 [2947]<br>17  | 425 [3761]<br>16  | 487 [4310]<br>13  | 545 [4823]<br>11  | 621 [5496]<br>6   | 659 [5832]<br>2   |             |                 |  |   | 25  |
|  |            | 15 [4]                                | 79 [699]<br>46  | 152 [1345]<br>45   | 235 [2080]<br>44  | 311 [2752]<br>43  | 385 [3407]<br>41  | 452 [4000]<br>38  | 518 [4584]<br>35  | 555 [4912]<br>32  | 641 [5673]<br>28  | 690 [6106]<br>24  |             |                 |  |   | 47  |
|  |            | 23 [6]                                | 68 [602]<br>70  | 150 [1328]<br>69   | 227 [2009]<br>68  | 295 [2611]<br>66  | 378 [3345]<br>63  | 443 [3920]<br>58  | 512 [4531]<br>53  | 578 [5115]<br>49  | 621 [5496]<br>47  | 686 [6071]<br>43  |             |                 |  |   | 71  |
|  |            | 30 [8]                                | 56 [496]<br>93  | 145 [1283]<br>92   | 218 [1929]<br>89  | 286 [2531]<br>86  | 356 [3150]<br>82  | 436 [3858]<br>77  | 506 [4478]<br>73  | 560 [4956]<br>67  | 614 [5434]<br>63  | 665 [5885]<br>59  |             |                 |  |   | 93  |
|  |            | 38 [10]                               | 54 [478]<br>118 | 140 [1239]<br>117  | 202 [1788]<br>115 | 273 [2416]<br>113 | 348 [3080]<br>110 | 427 [3779]<br>104 | 501 [4434]<br>98  | 557 [4929]<br>91  | 604 [5345]<br>85  | 664 [5876]<br>77  |             |                 |  |   | 118 |
|  |            | 45 [12]                               | 38 [336]<br>140 | 134 [1186]<br>138  | 192 [1681]<br>136 | 260 [2301]<br>134 | 336 [2973]<br>130 | 409 [3619]<br>124 | 476 [4212]<br>117 | 542 [4796]<br>110 | 601 [5319]<br>103 | 642 [5681]<br>97  |             |                 |  |   | 140 |
|  |            | 53 [14]                               | 22 [195]<br>165 | 122 [1080]<br>163  | 173 [1531]<br>161 | 255 [2257]<br>158 | 323 [2858]<br>154 | 391 [3460]<br>147 | 451 [3991]<br>141 | 521 [4611]<br>134 | 582 [5150]<br>126 | 630 [5575]<br>118 |             |                 |  |   | 165 |
|  |            | 61 [16]                               | 11 [97]<br>188  | 105 [930]<br>186   | 157 [1389]<br>184 | 229 [2027]<br>182 | 298 [2637]<br>177 | 376 [3327]<br>170 | 440 [3894]<br>162 | 503 [4451]<br>155 | 557 [4929]<br>147 | 618 [5469]<br>138 |             |                 |  |   | 189 |
|  |            | 68 [18]                               |                 | 88 [779]<br>210  | 144 [1274]<br>208 | 220 [1947]<br>204 | 285 [2522]<br>197 | 356 [3150]<br>190 | 424 [3752]<br>181 | 487 [4310]<br>173 | 549 [4858]<br>165 | 602 [5327]<br>156 |             |                 |  |   | 211 |
|  |            | 76 [20]                               |                 | 70 [620]<br>235  | 126 [1062]<br>233 | 190 [1681]<br>230 | 262 [2319]<br>226 | 335 [2965]<br>218 | 410 [3628]<br>209 | 463 [4097]<br>202 | 528 [4673]<br>193 | 586 [5186]<br>185 |             |                 |  |   | 236 |
|  |            | <b>Rotor Width</b>                    |                 | <b>Overall Efficiency</b> - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input checked="" type="checkbox"/> |                   |                   |                   |                   |                   |                   |                   |                   |             |                 |  |   |     |
|  |            | 63.5 [2.502]                          |                 | Theoretical Torque - Nm [lb-in]  |                   |                   |                   |                   |                   |                   |                   |                   |             |                 |  |   |     |
| mm [in]  |            | 87 [770]                              | 177 [1566]      | 267 [2362]   | 354 [3132]        | 441 [3903]        | 533 [4717]        | 620 [5487]        | 708 [6265]        | 795 [7035]        | 887 [7850]        |                   |             |                 |  |   |     |
| Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS] |            |                                       |                 |  |                   |                   |                   |                   |                   |                   |                   |                   |             |                 |  |   |     |

|  |            |                                       |                 |  |                   |                   |                   |                   |                   |                   |  |  |             |                 |  |   |     |
|--|------------|---------------------------------------|-----------------|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--|--|-------------|-----------------|--|---|-----|
| <b>400</b>   |            | Pressure - bar [psi]                  |                 |  |                   |                   |                   |                   |                   | Max. Cont.        |  |  | Max. Inter. |                 |  |   |     |
|  |            | 17 [250]                              | 35 [500]        | 52 [750]   | 69 [1000]         | 86 [1250]         | 104 [1500]        | 121 [1750]        | 138 [2000]        |                   |  |  |             |                 |  |   |     |
| 400 cm <sup>3</sup> [24.4 in <sup>3</sup> ] / rev                            |            |                                       |                 |  |                   |                   |                   |                   |                   |                   |  |  |             |                 |  |   |     |
| <b>Intermittent Ratings - 10% of Operation</b>                               |            |                                       |                 |  |                   |                   |                   |                   |                   |                   |  |  |             |                 |  |   |     |
| Flow - lpm [gpm]   | Max. Cont. | Torque - Nm [lb-in], <b>Speed rpm</b> |                 |  |                   |                   |                   |                   |                   |                   |  |  |             | Theoretical rpm |  |   |     |
|  |            | 2 [0.5]                               | 82 [723]<br>5   | 165 [1459]<br>4  | 250 [2213]<br>3   | 329 [2912]<br>2   | 418 [3699]<br>3   |                   |                   |                   |  |  |             |                 |  | 5 |     |
|  |            | 4 [1]                                 | 86 [761]<br>10  | 175 [1549]<br>9  | 262 [2317]<br>8   | 345 [3053]<br>7   | 427 [3779]<br>6   | 497 [4398]<br>4   | 577 [5106]<br>3   | 660 [5841]<br>2   |  |  |             |                 |  |   | 10  |
|  |            | 8 [2]                                 | 89 [791]<br>20  | 191 [1690]<br>19   | 284 [2513]<br>18  | 364 [3219]<br>17  | 448 [3962]<br>15  | 502 [4443]<br>13  | 606 [5363]<br>11  | 682 [6036]<br>8   |  |  |             |                 |  |   | 20  |
|  |            | 15 [4]                                | 87 [771]<br>38  | 189 [1673]<br>37   | 277 [2451]<br>36  | 378 [3346]<br>34  | 467 [4135]<br>33  | 529 [4679]<br>32  | 629 [5569]<br>28  | 698 [6177]<br>25  |  |  |             |                 |  |   | 38  |
|  |            | 23 [6]                                | 79 [703]<br>58  | 185 [1637]<br>56   | 271 [2398]<br>55  | 373 [3305]<br>53  | 464 [4110]<br>50  | 551 [4873]<br>49  | 631 [5584]<br>46  | 696 [6159]<br>44  |  |  |             |                 |  |   | 58  |
|  |            | 30 [8]                                | 70 [620]<br>75  | 176 [1558]<br>73   | 260 [2301]<br>71  | 364 [3217]<br>69  | 455 [4025]<br>66  | 550 [4868]<br>63  | 623 [5515]<br>60  | 676 [5982]<br>58  |  |  |             |                 |  |   | 75  |
|  |            | 38 [10]                               | 59 [523]<br>95  | 159 [1407]<br>93   | 239 [2115]<br>92  | 351 [3106]<br>87  | 442 [3913]<br>84  | 541 [4787]<br>81  | 611 [5410]<br>78  | 663 [5864]<br>75  |  |  |             |                 |  |   | 95  |
|  |            | 45 [12]                               | 52 [460]<br>113 | 145 [1283]<br>111  | 233 [2062]<br>108 | 335 [2968]<br>105 | 430 [3806]<br>103 | 529 [4684]<br>96  | 595 [5269]<br>91  | 645 [5705]<br>88  |  |  |             |                 |  |   | 113 |
|  |            | 53 [14]                               | 46 [404]<br>133 | 138 [1221]<br>131  | 215 [1903]<br>127 | 318 [2813]<br>126 | 409 [3622]<br>121 | 513 [4543]<br>114 | 578 [5115]<br>109 | 624 [5522]<br>104 |  |  |             |                 |  |   | 133 |
|  |            | 61 [16]                               |                 | 113 [1000]<br>152  | 191 [1690]<br>147 | 298 [2641]<br>145 | 390 [3448]<br>139 | 496 [4393]<br>130 | 560 [4959]<br>127 | 606 [5364]<br>121 |  |  |             |                 |  |   | 153 |
|  |            | 68 [18]                               |                 | 96 [850]<br>170  | 178 [1575]<br>164 | 263 [2328]<br>163 | 365 [3230]<br>156 | 478 [4228]<br>146 | 517 [4572]<br>142 | 580 [5133]<br>137 |  |  |             |                 |  |   | 170 |
|  |            | 76 [20]                               |                 | 74 [655]<br>190  | 150 [1327]<br>185 | 240 [2122]<br>180 | 342 [3027]<br>174 | 436 [3855]<br>165 | 493 [4365]<br>160 | 560 [4956]<br>156 |  |  |             |                 |  |   | 190 |
|  |            | <b>Rotor Width</b>                    |                 | <b>Overall Efficiency</b> - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input checked="" type="checkbox"/> |                   |                   |                   |                   |                   |                   |  |  |             |                 |  |   |     |
|  |            | 78.9 [3.106]                          |                 | Theoretical Torque - Nm [lb-in]  |                   |                   |                   |                   |                   |                   |  |  |             |                 |  |   |     |
| mm [in]  |            | 112 [992]                             | 224 [1984]      | 336 [2976]   | 448 [3968]        | 560 [4960]        | 673 [5952]        | 785 [6944]        | 897 [7935]        |                   |  |  |             |                 |  |   |     |
| Displacement tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS] |            |                                       |                 |  |                   |                   |                   |                   |                   |                   |  |  |             |                 |  |   |     |

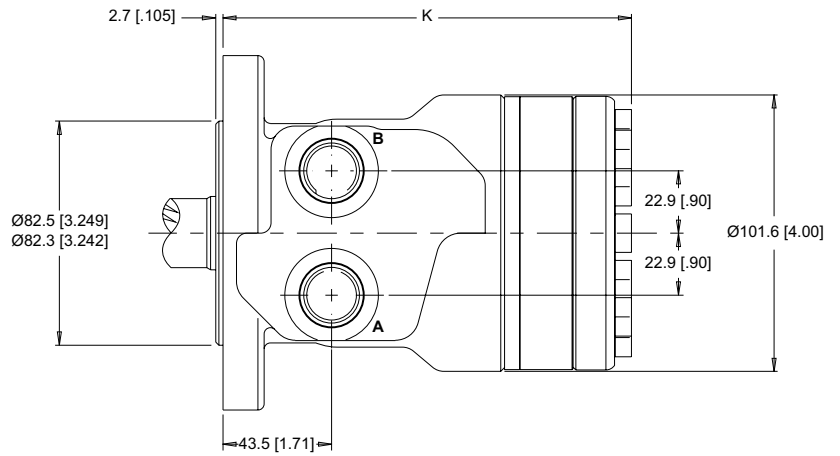
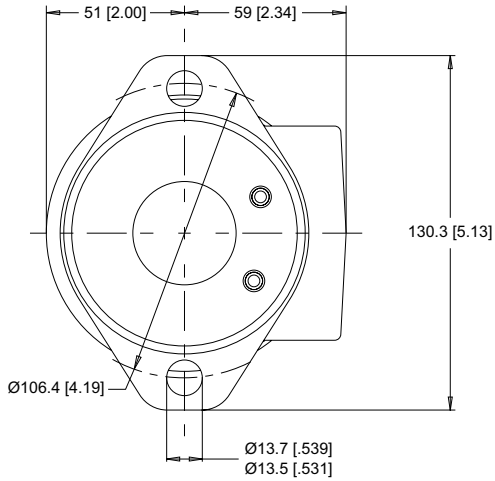
► Performance data is typical. Performance of production units varies slightly from one motor to another.

**HOUSINGS**

► Dimensions shown are without paint. Paint thickness can be up to 0.13 [.005].

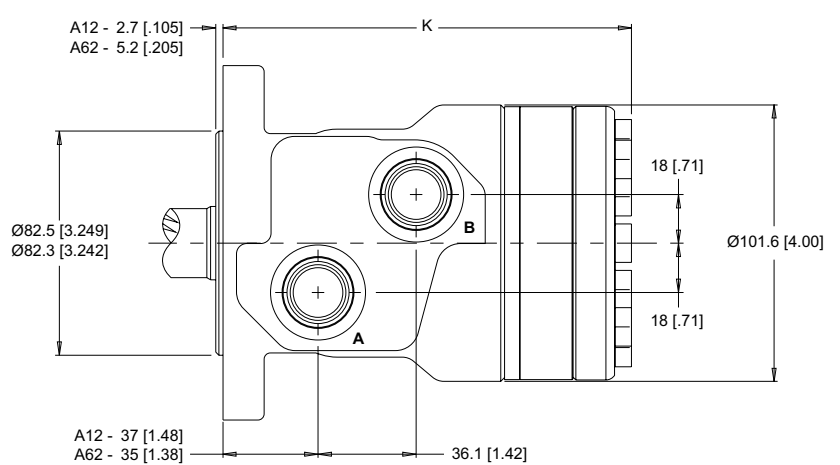
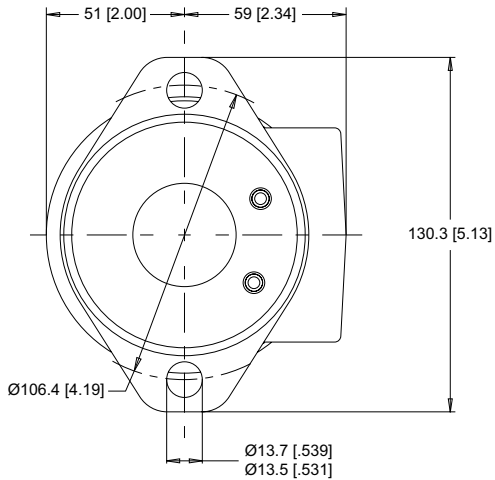
**2-HOLE, SAE A MOUNT, ALIGNED PORTS**

**A10** 1/2-14 NPT    **A11** 7/8-14 UNF



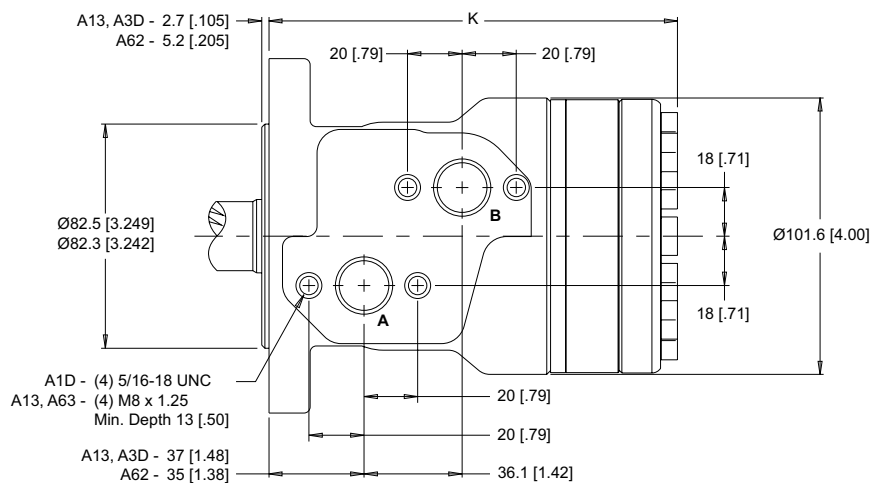
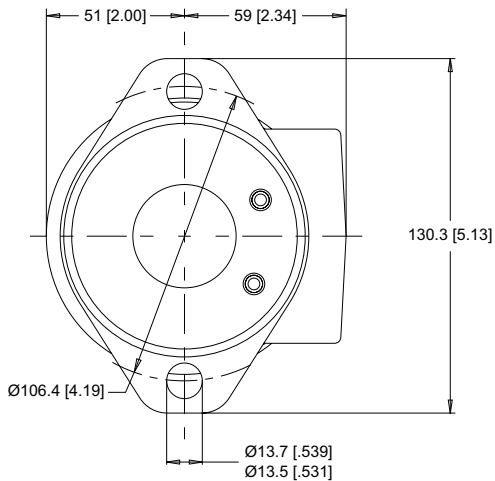
**2-HOLE, SAE A MOUNT, OFFSET PORTS**

**A12** G 1/2    **A62** G 1/2 (TP)



**2-HOLE, SAE A MOUNT, OFFSET MANIFOLD PORTS**

**A13** G 1/2    **A1D** 7/8-14 UNF    **A63** G 1/2 (TP)



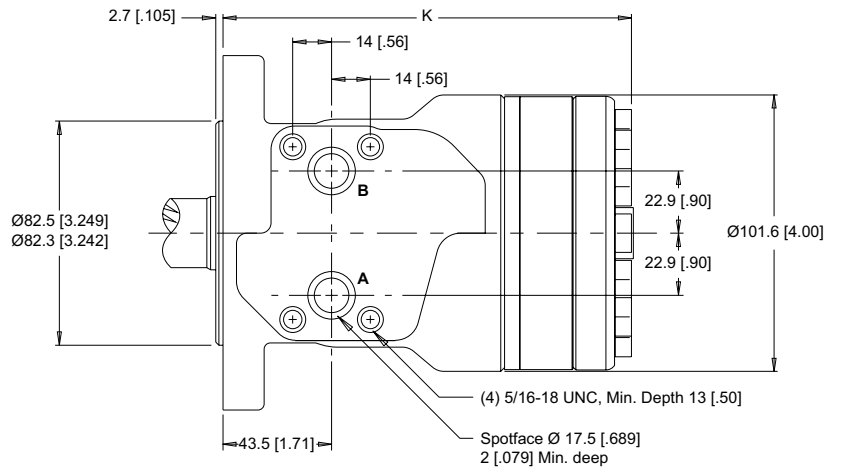
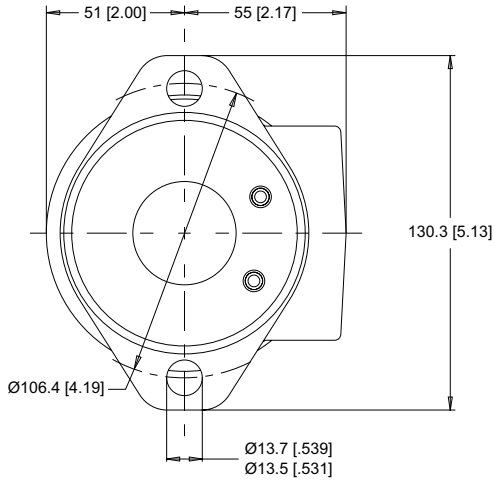
► Dimension K is charted on page 15. ► (TP) - Taller Pilot Height. Refer to detailed drawing for dimensional differences.

**HOUSINGS**

► Dimensions shown are without paint. Paint thickness can be up to 0.13 [.005].

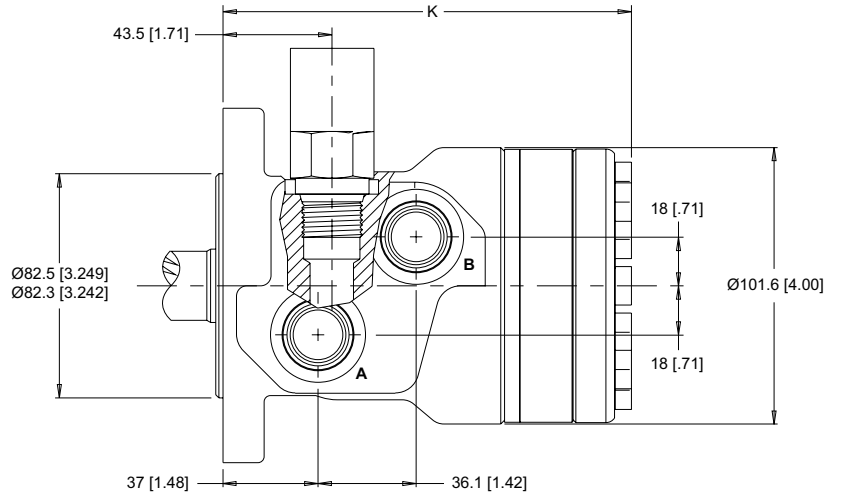
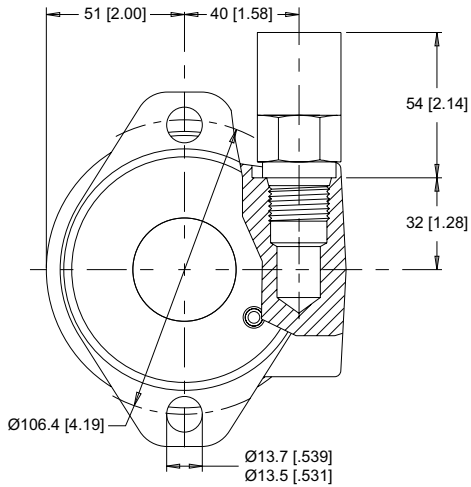
**2-HOLE, SAE A MOUNT, ALIGNED MANIFOLD PORTS**

**A17** 1/2" Drilled



**2-HOLE, SAE A MOUNT, OFFSET PORTS, VALVE CAVITY**

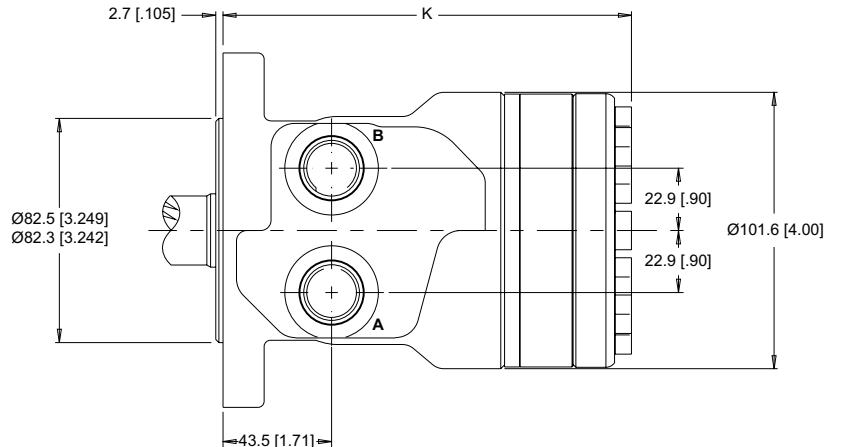
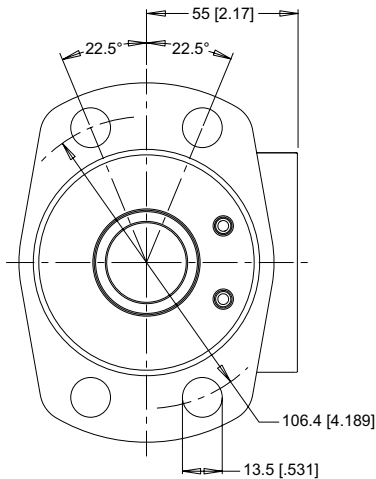
**A19** 7/8-14 UNF



**4-HOLE, MAGNETO MOUNT, ALIGNED PORTS**

**A30** 1/2-14 NPT

**A31** 7/8-14 UNF



► Dimension K is charted on page 15. ► (TP) - Taller Pilot Height. Refer to detailed drawing for dimensional differences.

**HOUSINGS**

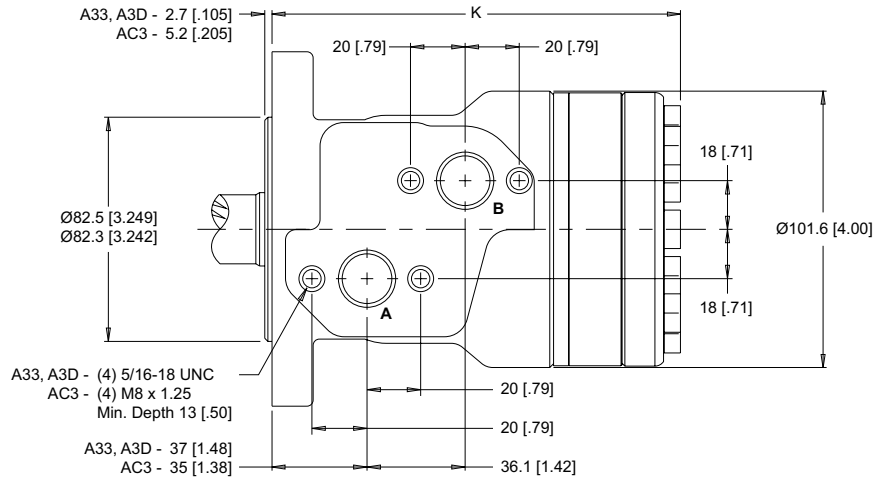
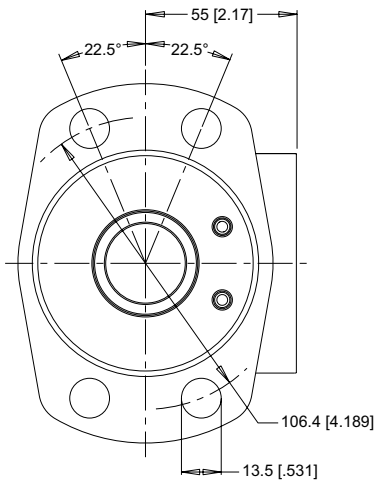
► Dimensions shown are without paint. Paint thickness can be up to 0.13 [.005].

**4-HOLE, MAGNETO MOUNT, OFFSET MANIFOLD PORTS**

**A33** G 1/2

**A3D** 7/8-14 UNF

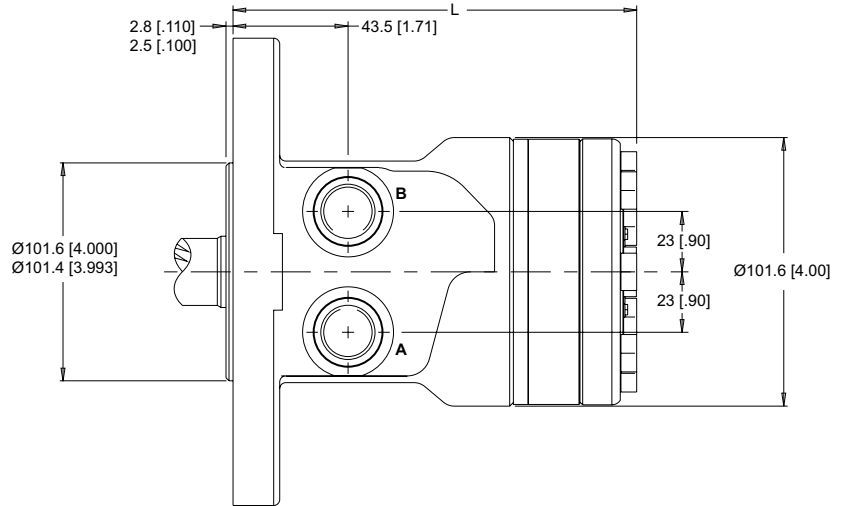
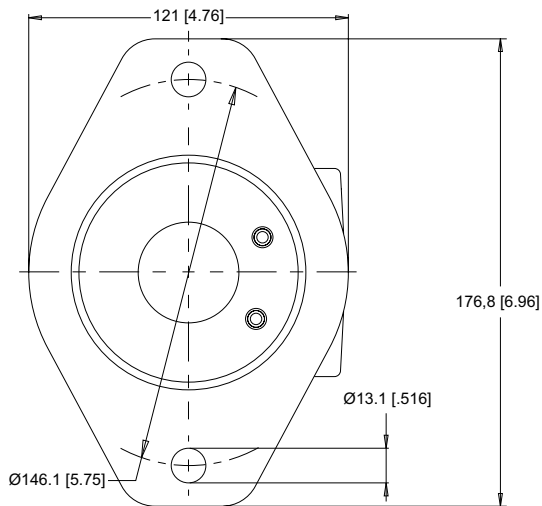
**AC3** G 1/2 (TP)



**2-HOLE, SAE B MOUNT, ALIGNED PORTS**

**B11** 7/8-14 UNF

**B18** G 1/2



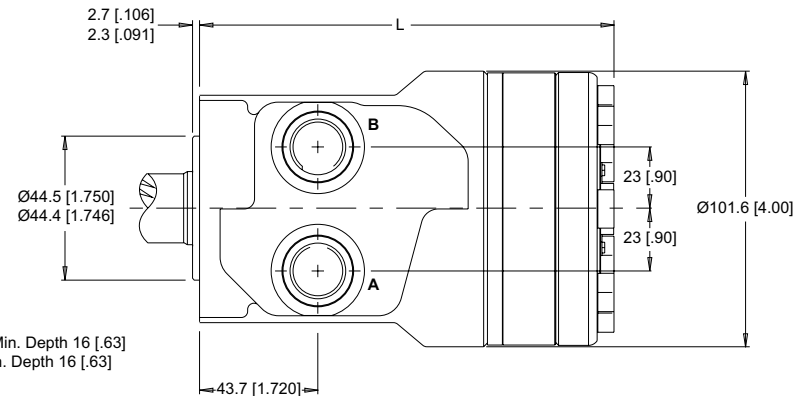
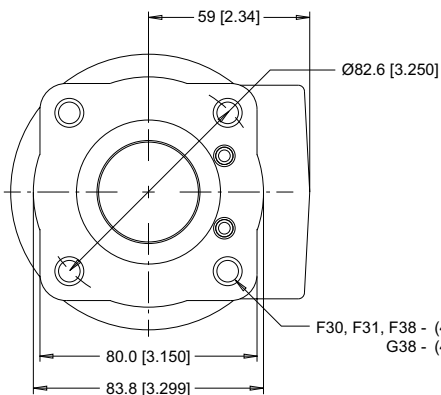
**4-HOLE, SQUARE MOUNT, ALIGNED PORTS**

**F30** 1/2-14 NPT

**F31** 7/8-14 UNF

**F38** G 1/2

**G38** G 1/2

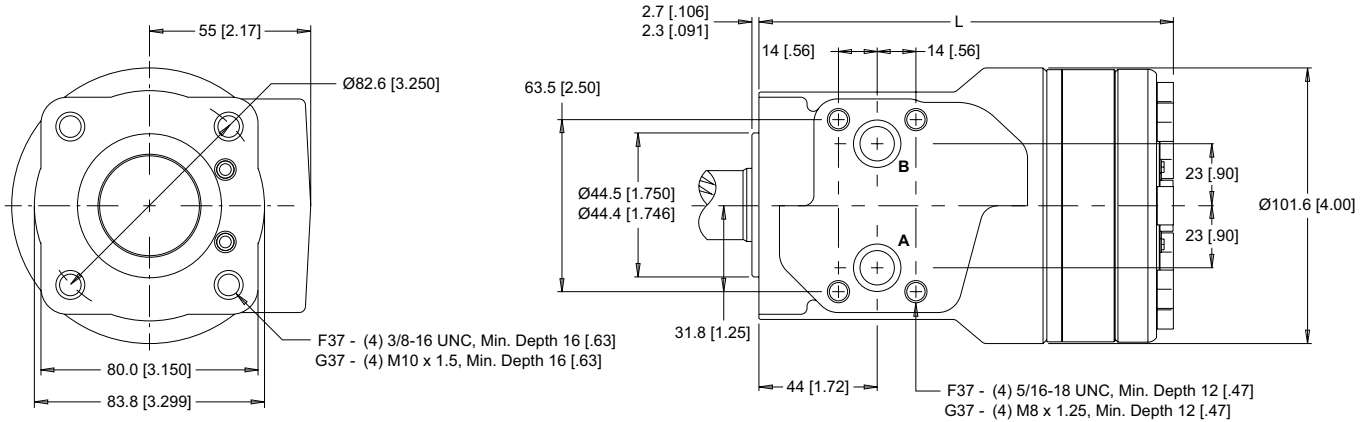


► Dimensions K & L are charted on page 15. ► (TP) - Taller Pilot Height. Refer to detailed drawing for dimensional differences.

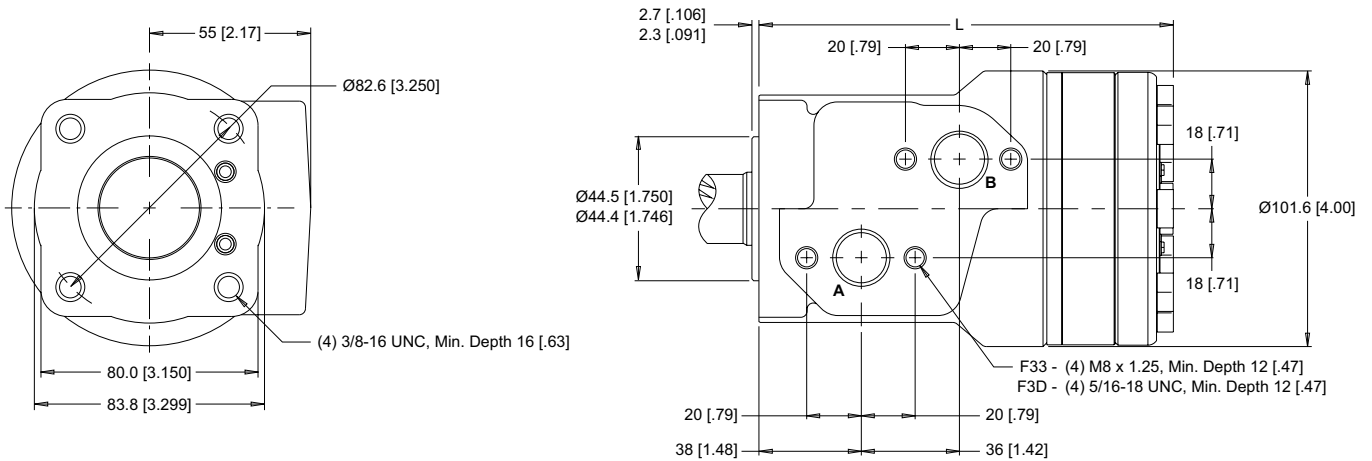
**HOUSINGS**

► Dimensions shown are without paint. Paint thickness can be up to 0.13 [0.005].

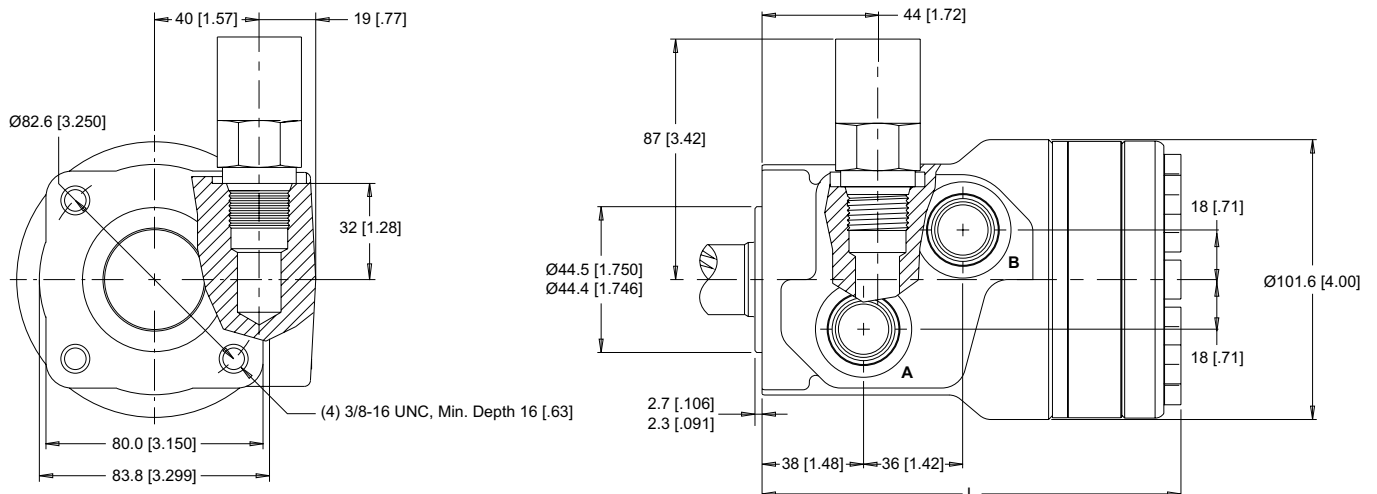
**4-HOLE, SQUARE MOUNT, ALIGNED MANIFOLD PORTS** **F37** 1/2" Drilled **G37** 1/2" Drilled



**4-HOLE, SQUARE MOUNT, OFFSET MANIFOLD PORTS** **F33** G 1/2 **F3D** 7/8-14 UNF



**4-HOLE, SQUARE MOUNT, OFFSET PORTS, VALVE CAVITY** **F39** 7/8-14 UNF

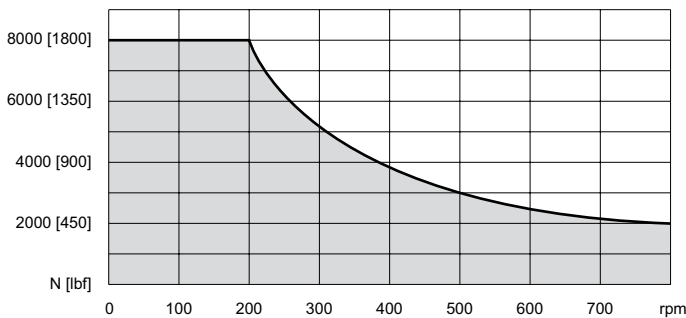


► Dimension L is charted on page 15.

**TECHNICAL INFORMATION**

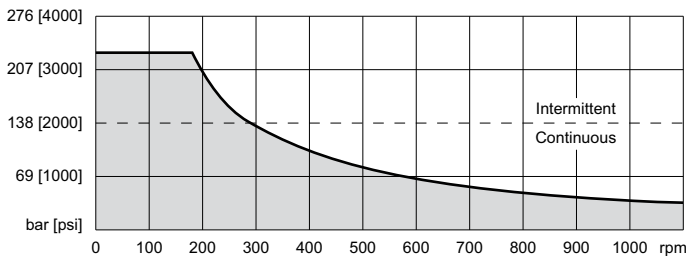
**ALLOWABLE SHAFT LOAD / BEARING CURVE**

The bearing curve below represents the side load capacity of the motor at the centerline of the key for various motor speeds. Operating conditions within the shaded area will maintain acceptable oil film lubrication with recommended fluids. Operating conditions outside the shaded area are susceptible to motor failure due to oil starvation and/or excessive heat generation. Fluids with low lubricity or low viscosity may require the maximum load and speed ratings to be derated to provide acceptable motor life and performance.



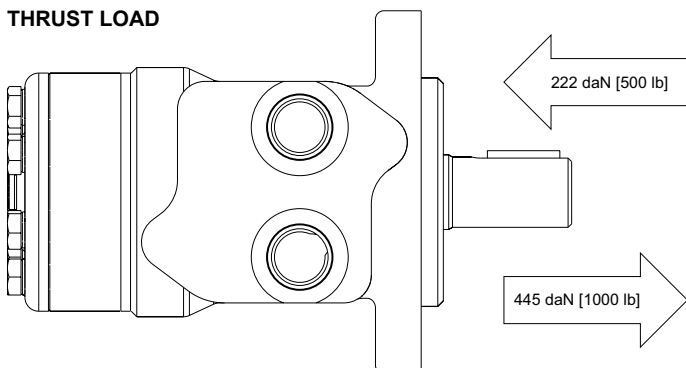
**PERMISSIBLE SHAFT SEAL PRESSURE**

The curve below represents allowable seal pressure at various speeds. Operation in the gray area results in maintaining the rated life of the shaft seal. Actual shaft seal pressure depends on motor configuration.



- ▶ With check valves and drain connection, the shaft seal pressure equals pressure in the drain line. With check valves and no drain connection, shaft seal pressure is identical to output pressure. No check valves and no drain connection, the shaft seal pressure is identical to the average value of input and output pressure.

**THRUST LOAD**



**LENGTH & WEIGHT CHARTS**

Dimension K is the overall motor length from the rear of the motor to the mounting flange surface and is referenced on detailed housing drawings listed on pages 11-13.

| K   | 3mm Pilot  | 8mm Pilot  | Weight     |
|-----|------------|------------|------------|
| #   | mm [in]    | mm [in]    | kg [lb]    |
| 040 | 142 [5.60] | 140 [5.50] | 6.6 [14.5] |
| 050 | 144 [5.67] | 142 [5.57] | 6.6 [14.5] |
| 060 | 146 [5.74] | 144 [5.64] | 6.7 [14.7] |
| 070 | 147 [5.80] | 145 [5.70] | 6.7 [14.7] |
| 080 | 150 [5.91] | 148 [5.81] | 6.8 [15.0] |
| 090 | 151 [5.96] | 149 [5.86] | 6.8 [15.0] |
| 100 | 154 [6.06] | 152 [5.96] | 6.9 [15.2] |
| 115 | 156 [6.15] | 154 [6.05] | 7.1 [15.6] |
| 130 | 160 [6.28] | 158 [6.18] | 7.3 [16.0] |
| 160 | 166 [6.53] | 164 [6.43] | 7.5 [16.5] |
| 200 | 173 [6.83] | 171 [6.73] | 8.0 [17.6] |
| 240 | 182 [7.15] | 180 [7.05] | 8.5 [18.7] |
| 250 | 183 [7.20] | 181 [7.10] | 8.5 [18.7] |
| 290 | 192 [7.56] | 190 [7.46] | 8.8 [19.4] |
| 320 | 198 [7.78] | 196 [7.68] | 9.0 [19.8] |
| 400 | 213 [8.39] | 211 [8.29] | 9.8 [21.6] |

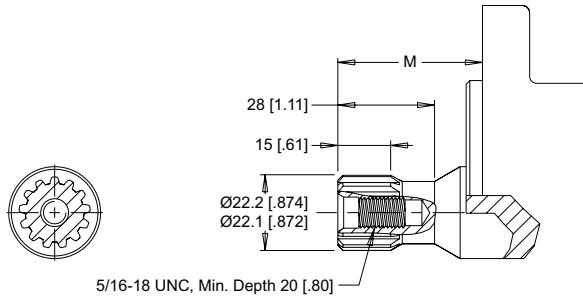
Dimension L is the overall motor length from the rear of the motor to the mounting flange surface and is referenced on detailed housing drawings listed on pages 13-14.

| L   | Square & B Mounts | B Mount Weight | Sq. Mount Weight |
|-----|-------------------|----------------|------------------|
| #   | mm [in]           | kg [lb]        | kg [lb]          |
| 040 | 142 [5.60]        | 7.8 [17.2]     | 5.3 [11.8]       |
| 050 | 144 [5.67]        | 7.8 [17.2]     | 5.3 [11.9]       |
| 060 | 146 [5.74]        | 7.9 [17.4]     | 5.4 [11.9]       |
| 070 | 147 [5.80]        | 7.9 [17.4]     | 5.4 [11.9]       |
| 080 | 150 [5.91]        | 8.0 [17.6]     | 5.5 [12.1]       |
| 090 | 151 [5.96]        | 8.0 [17.6]     | 5.5 [12.1]       |
| 100 | 154 [6.06]        | 8.1 [17.8]     | 5.6 [12.3]       |
| 115 | 156 [6.15]        | 8.3 [18.3]     | 5.8 [12.8]       |
| 130 | 160 [6.28]        | 8.5 [18.7]     | 6.0 [13.2]       |
| 160 | 166 [6.53]        | 8.7 [19.1]     | 6.2 [13.7]       |
| 200 | 173 [6.83]        | 9.2 [20.2]     | 6.7 [14.8]       |
| 240 | 182 [7.15]        | 9.7 [21.3]     | 7.2 [15.9]       |
| 250 | 183 [7.20]        | 9.7 [21.3]     | 7.2 [15.9]       |
| 290 | 192 [7.56]        | 10.0 [22.0]    | 7.5 [16.5]       |
| 320 | 198 [7.78]        | 10.2 [22.4]    | 7.7 [17.0]       |
| 400 | 213 [8.39]        | 11.0 [24.2]    | 8.5 [18.7]       |

- ▶ 255 & 256 series motor weights can vary ± 0.5 kg [1 lb] depending on model configurations such as housing, shaft, endcover, options etc.

**SHAFTS**

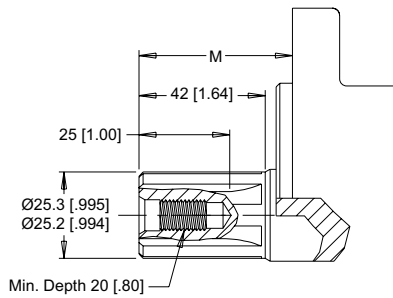
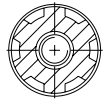
**01** 7/8" 13 Tooth Spline



Max. Torque: 170 Nm [1500 lb-in]

**02** 1" 6B Spline, 5/16-18 Tap

6B Spline  
SAE J499 Standard

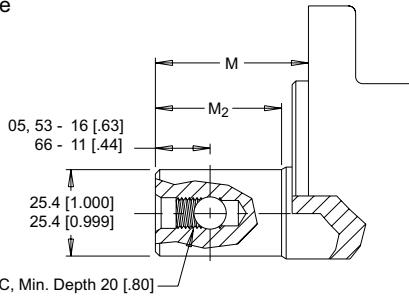
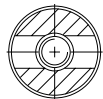


Max. Torque: 678 Nm [6000 lb-in]

**04** 1" 6B Spline, M8x1.25 Tap

**05** 1" - 9.5 [.375] Pinhole

**53** 1" - 10.3 [.406] Pinhole

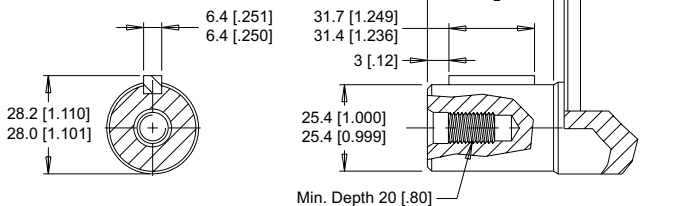


Max. Torque: 678 Nm [6000 lb-in]

**10** 1" Straight, 5/16-18 Tap

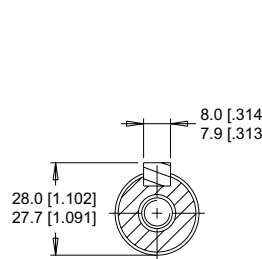
**11** 1" Straight, M8x1.25 Tap

**15** 1" Straight Ext., 5/16-18 Tap

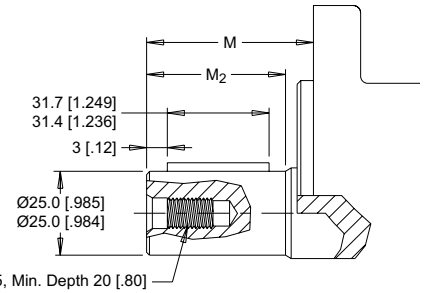


Max. Torque: 655 Nm [5800 lb-in]

**12** 25mm Straight

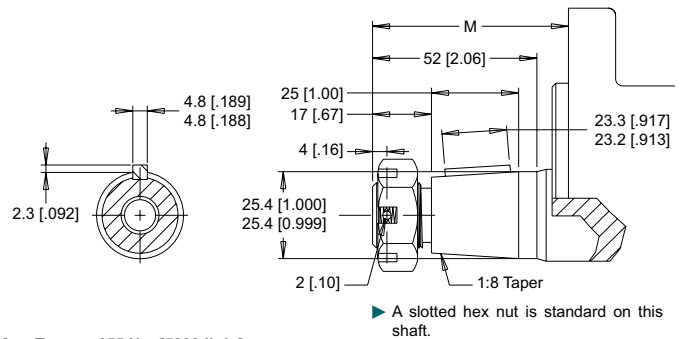


**16** 25mm Straight Extended



Max. Torque: 678 Nm [6000 lb-in]

**13** 1" Tapered



Max. Torque: 655 Nm [5800 lb-in]

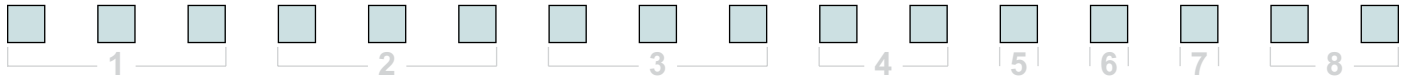
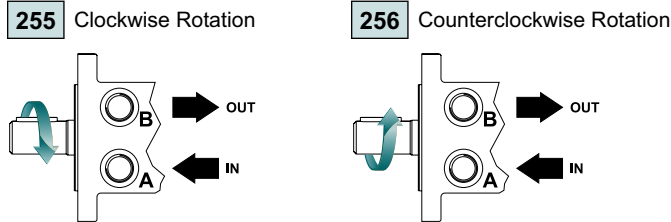
**MOUNTING / SHAFT LENGTH CHART**

Dimension M is the overall distance from the motor mounting surface to the end of the shaft.

Additional shaft length information, if necessary, is noted as M<sub>2</sub> and does not increase or decrease the listed M dimensions in this chart. The overall shaft lengths are already factored into the overall distance from the mounting surface to the end of the shaft.

| M  | 3mm Pilot | 8mm Pilot | M <sub>2</sub> |
|----|-----------|-----------|----------------|
| #  | mm [in]   | mm [in]   | mm [in]        |
| 01 | 40 [1.59] | 43 [1.69] | N/A            |
| 02 | 48 [1.88] | 51 [1.98] | N/A            |
| 04 | 48 [1.88] | 51 [1.98] | N/A            |
| 05 | 48 [1.88] | 51 [1.98] | 42 [1.64]      |
| 10 | 48 [1.88] | 51 [1.98] | 42 [1.64]      |
| 12 | 53 [2.08] | 56 [2.18] | 43 [1.69]      |
| 13 | 58 [2.29] | 61 [2.39] | N/A            |
| 15 | 64 [2.52] | 67 [2.62] | 58 [2.28]      |
| 16 | 64 [2.52] | 67 [2.62] | 59 [2.34]      |
| 53 | 48 [1.88] | 51 [1.98] | 42 [1.64]      |
| 66 | 54 [2.13] | 57 [2.23] | 48 [1.89]      |



**ORDERING INFORMATION**

**1. CHOOSE SERIES DESIGNATION**


► The 255 & 256 series are bi-directional. Reversing the inlet hose will reverse shaft rotation.

**2. SELECT A DISPLACEMENT OPTION**

|  |   |
|--|---|
| <b>040</b> 40 cm <sup>3</sup> /rev [2.5 in <sup>3</sup> /rev]  | <b>130</b> 129 cm <sup>3</sup> /rev [7.9 in <sup>3</sup> /rev]  |
| <b>050</b> 50 cm <sup>3</sup> /rev [3.1 in <sup>3</sup> /rev]  | <b>160</b> 160 cm <sup>3</sup> /rev [9.8 in <sup>3</sup> /rev]  |
| <b>060</b> 59 cm <sup>3</sup> /rev [3.6 in <sup>3</sup> /rev]  | <b>200</b> 198 cm <sup>3</sup> /rev [12.1 in <sup>3</sup> /rev] |
| <b>070</b> 71 cm <sup>3</sup> /rev [4.3 in <sup>3</sup> /rev]  | <b>240</b> 236 cm <sup>3</sup> /rev [14.4 in <sup>3</sup> /rev] |
| <b>080</b> 79 cm <sup>3</sup> /rev [4.9 in <sup>3</sup> /rev]  | <b>250</b> 250 cm <sup>3</sup> /rev [15.3 in <sup>3</sup> /rev] |
| <b>090</b> 88 cm <sup>3</sup> /rev [5.4 in <sup>3</sup> /rev]  | <b>290</b> 291 cm <sup>3</sup> /rev [17.8 in <sup>3</sup> /rev] |
| <b>100</b> 100 cm <sup>3</sup> /rev [6.1 in <sup>3</sup> /rev] | <b>320</b> 322 cm <sup>3</sup> /rev [19.6 in <sup>3</sup> /rev] |
| <b>115</b> 113 cm <sup>3</sup> /rev [6.9 in <sup>3</sup> /rev] | <b>400</b> 400 cm <sup>3</sup> /rev [24.4 in <sup>3</sup> /rev] |

**3. SELECT A MOUNT & PORT OPTION**

|   |
|---|
| <b>A10</b> 2-Hole, SAE A Mount, Aligned Ports, 1/2-14 NPT             |
| <b>A11</b> 2-Hole, SAE A Mount, Aligned Ports, 7/8-14 UNF             |
| <b>A12</b> 2-Hole, SAE A Mount, Offset Ports, G 1/2                   |
| <b>A13</b> 2-Hole, SAE A Mount, Offset Manifold Ports, G 1/2          |
| <b>A1D</b> 2-Hole, SAE A Mount, Offset Manifold Ports, 7/8-14 UNF     |
| <b>A19</b> 2-Hole, SAE A Mount, Offset Ports, Valve Cavity 7/8-14 UNF |
| <b>A30</b> 4-Hole, Magneto Mount, Aligned Ports, 1/2-14 NPT           |
| <b>A31</b> 4-Hole, Magneto Mount, Aligned Ports, 7/8-14 UNF           |
| <b>A33</b> 4-Hole, Magneto Mount, Offset Manifold Ports, G 1/2        |
| <b>A3D</b> 4-Hole, Magneto Mount, Offset Manifold Ports, 7/8-14 UNF   |
| <b>A62</b> 2-Hole, SAE A Mount, Offset Ports, G 1/2 (TP)              |
| <b>A63</b> 2-Hole, SAE A Mount, Offset Manifold Ports, G 1/2 (TP)     |
| <b>AC3</b> 4-Hole, Magneto Mount, Offset Manifold Ports, G 1/2 (TP)   |
| <b>B11</b> 2-Hole, SAE B Mount, Aligned Ports, 7/8-14 UNF             |
| <b>B18</b> 2-Hole, SAE B Mount, Aligned Ports, G 1/2                  |
| <b>F30</b> 4-Hole, Square Mount, Aligned Ports, 1/2-14 NPT            |
| <b>F31</b> 4-Hole, Square Mount, Aligned Ports, 7/8-14 UNF            |
| <b>F33</b> 4-Hole, Square Mount, Offset Manifold Ports, G 1/2         |
| <b>F37</b> 4-Hole, Square Mount, Aligned Manifold Ports, 1/2" Drilled |

► (TP) - Tall pilot. Speed sensor option is not available on tall pilot housings.

**3. SELECT A MOUNT & PORT OPTION**

|  |
|--|
| <b>F38</b> 4-Hole, Square Mount, Aligned Ports, G 1/2                  |
| <b>F39</b> 4-Hole, Square Mount, Offset Ports, Valve Cavity 7/8-14 UNF |
| <b>F3D</b> 4-Hole, Square Mount, Offset Manifold Ports, 7/8-14 UNF     |
| <b>G37</b> 4-Hole, Square Mount, Aligned Manifold Ports, 1/2" Drilled  |
| <b>G38</b> 4-Hole, Square Mount, Aligned Ports, G 1/2                  |

**4. SELECT A SHAFT OPTION**

|                                     |                                    |
|-------------------------------------|------------------------------------|
| <b>01</b> 7/8" 13 Tooth Spline      | <b>12</b> 25mm Straight            |
| <b>02</b> 1" 6B Spline, 5/16-18 Tap | <b>13</b> 1" Tapered               |
| <b>04</b> 1" 6B Spline, M8x1.25 Tap | <b>15</b> 1" Straight Extended     |
| <b>05</b> 1" - 9.5 [.375] Pinhole   | <b>16</b> 25mm Straight Extended   |
| <b>10</b> 1" Straight 5/16-18 Tap   | <b>53</b> 1" - 10.3 [.406] Pinhole |
| <b>11</b> 1" Straight M8x1.25 Tap   | <b>66</b> 1" - 8.0 [.315] Pinhole  |

► The 15 & 16 extended shafts are designed for use with one of the speed sensor options listed in STEP 7.

**5. SELECT A PAINT OPTION**

|  |
|--|
| <b>A</b> Black                             |
| <b>B</b> Black, Unpainted Mounting Surface |

**6. SELECT A VALVE CAVITY / CARTRIDGE OPTION**

|                                    |                                    |
|------------------------------------|------------------------------------|
| <b>A</b> None                      | <b>F</b> 121 bar [1750 psi] Relief |
| <b>B</b> Valve Cavity Only         | <b>G</b> 138 bar [2000 psi] Relief |
| <b>C</b> 69 bar [1000 psi] Relief  | <b>J</b> 173 bar [2500 psi] Relief |
| <b>D</b> 86 bar [1250 psi] Relief  | <b>L</b> 207 bar [3000 psi] Relief |
| <b>E</b> 104 bar [1500 psi] Relief |                                    |

► Valve cavity is only available on the A19 & F39 housings.

**7. SELECT AN ADD-ON OPTION**

|   |
|---|
| <b>A</b> Standard   |
| <b>B</b> Lock Nut   |
| <b>C</b> Solid Hex Nut  |
| <b>W</b> Speed Sensor, Dual, 4-Pin Male Weatherpack Connector   |
| <b>X</b> Speed Sensor, Dual, 4-Pin M12 Male Connector           |
| <b>Y</b> Speed Sensor, Single, 3-Pin Male Weatherpack Connector |
| <b>Z</b> Speed Sensor, Single, 4-Pin M12 Male Connector         |

**8. SELECT A MISCELLANEOUS OPTION**

|                            |
|----------------------------|
| <b>AA</b> None             |
| <b>EG</b> Viton Shaft Seal |

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