

## OVERVIEW

The WP motor series is an economical alternative to more complex roller gerotor designs and still provides high efficiency across a wide performance range. These motors are intended for light-duty applications requiring high torque in a compact package and are suitable for industrial and mobile applications including car wash brushes, food processing equipment, conveyors, machine tools, agricultural equipment, sweepers, skid steer attachments, and more.

## FEATURES / BENEFITS

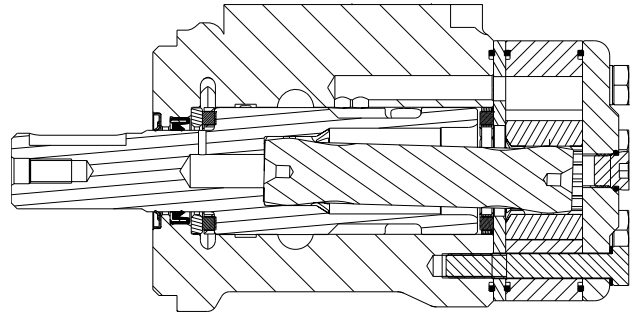
- Built-in check valves offer versatility and increased seal life.
- A variety of mounts and shafts provide flexibility in application design.
- Spool valve design gives superior performance and smooth operation over a wide speed and torque range.
- Standard high pressure shaft seals offer superior seal life and performance.

## TYPICAL APPLICATIONS

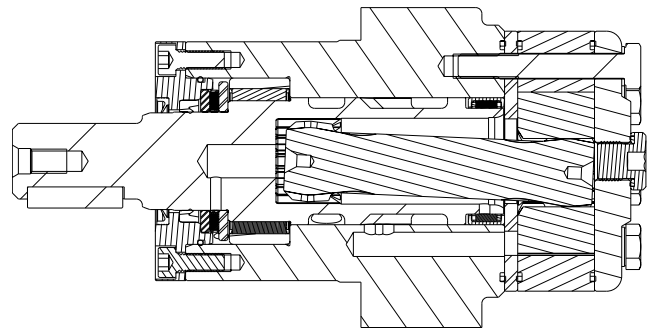
agriculture equipment, conveyors, carwashes, sweepers, food processing, grain augers, spreaders, feed rollers, augers, brush drives and more

## SERIES DESCRIPTIONS

**155/156** - Hydraulic Motor  
*Standard*



**157/158** - Hydraulic Motor  
*With Needle Bearings*



## 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       |
| 025  | 25 [1.5]                                               | 1570              | 1687   | 40 [11]                | 45 [12] | 35 [310]                  | 48 [425]   | 100 [1450]                 | 140 [2030] | 225 [3260] |
| 032  | 32 [2.0]                                               | 1550              | 1674   | 50 [13]                | 55 [15] | 45 [398]                  | 57 [504]   | 100 [1450]                 | 140 [2030] | 225 [3260] |
| 040  | 40 [2.5]                                               | 1471              | 1670   | 60 [16]                | 70 [19] | 65 [575]                  | 74 [655]   | 100 [1450]                 | 140 [2030] | 225 [3260] |
| 050  | 50 [3.0]                                               | 1208              | 1500   | 60 [16]                | 75 [20] | 92 [814]                  | 108 [956]  | 140 [2030]                 | 175 [2540] | 240 [3480] |
| 060  | 59 [3.6]                                               | 1014              | 1271   | 60 [16]                | 75 [20] | 125 [1106]                | 136 [1204] | 160 [2320]                 | 175 [2540] | 240 [3480] |
| 080  | 78 [4.8]                                               | 768               | 960    | 60 [16]                | 75 [20] | 164 [1451]                | 183 [1620] | 160 [2320]                 | 175 [2540] | 240 [3480] |
| 100  | 96 [5.9]                                               | 624               | 780    | 60 [16]                | 75 [20] | 200 [1770]                | 213 [1885] | 160 [2320]                 | 175 [2540] | 240 [3480] |
| 125  | 125 [7.6]                                              | 479               | 599    | 60 [16]                | 75 [20] | 262 [2319]                | 278 [2460] | 160 [2320]                 | 175 [2540] | 240 [3480] |
| 160  | 159 [9.7]                                              | 387               | 483    | 60 [16]                | 75 [20] | 327 [2894]                | 360 [3186] | 160 [2320]                 | 175 [2540] | 240 [3480] |
| 200  | 190 [11.6]                                             | 315               | 394    | 60 [16]                | 75 [20] | 380 [3365]                | 420 [3720] | 150 [2180]                 | 175 [2540] | 240 [3480] |
| 250  | 240 [14.6]                                             | 250               | 312    | 60 [16]                | 75 [20] | 445 [3940]                | 557 [4930] | 140 [2030]                 | 175 [2540] | 240 [3480] |
| 315  | 303 [18.5]                                             | 195               | 245    | 60 [16]                | 75 [20] | 460 [4071]                | 605 [5354] | 120 [1740]                 | 160 [2320] | 200 [2900] |
| 400  | 388 [23.7]                                             | 155               | 189    | 60 [16]                | 75 [20] | 488 [4320]                | 625 [5532] | 95 [1380]                  | 125 [1810] | 180 [2610] |

► 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

|                                                 |                        | Pressure - bar [psi]                                                                                                                  |          | Max. Cont. |            | Max. Inter. |                 |
|-------------------------------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------|----------|------------|------------|-------------|-----------------|
| <b>025</b>                                      |                        | 30 [435]                                                                                                                              | 60 [870] | 80 [1160]  | 100 [1450] | 120 [1740]  | 140 [2030]      |
| 25 cm <sup>3</sup> [1.5 in <sup>3</sup> ] / rev |                        | Intermittent Ratings - 10% of Operation                                                                                               |          |            |            |             |                 |
| Flow - lpm [gpm]                                | Max. Max. Inter. Cont. | Torque - Nm [lb-in], Speed rpm                                                                                                        |          |            |            |             | Theoretical rpm |
|                                                 |                        | 9 [80]                                                                                                                                | 18 [159] | 25 [221]   | 32 [283]   | 35 [310]    |                 |
| 5 [1.3]                                         |                        | 186                                                                                                                                   | 160      | 134        | 101        | 106         | 200             |
| 10 [2.6]                                        |                        | 386                                                                                                                                   | 352      | 323        | 280        | 255         | 400             |
| 15 [4.0]                                        |                        | 568                                                                                                                                   | 537      | 505        | 467        | 431         | 600             |
| 20 [5.3]                                        |                        | 777                                                                                                                                   | 736      | 692        | 660        | 608         | 800             |
| 25 [6.6]                                        |                        | 972                                                                                                                                   | 920      | 870        | 840        | 803         | 1000            |
| 30 [7.9]                                        |                        | 1167                                                                                                                                  | 1122     | 1088       | 1055       | 998         | 1200            |
| 35 [9.2]                                        |                        | 1360                                                                                                                                  | 1318     | 1282       | 1258       | 1216        | 1400            |
| 40 [10.6]                                       |                        | 1570                                                                                                                                  | 1503     | 1476       | 1432       | 1394        | 1600            |
| 45 [11.9]                                       |                        | 1687                                                                                                                                  | 1636     | 1600       | 1558       | 1516        | 1800            |
| <b>Rotor Width</b>                              |                        | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input checked="" type="checkbox"/> |          |            |            |             |                 |
| 4.1 [160]                                       |                        | Theoretical Torque - Nm [lb-in]                                                                                                       |          |            |            |             |                 |
| mm [in]                                         |                        | 12 [106]                                                                                                                              | 24 [211] | 32 [282]   | 40 [352]   | 48 [423]    | 56 [493]        |
|                                                 |                        | Displacement tested at 45°C [113°F] with an oil viscosity of 46cSt [213 SUS]                                                          |          |            |            |             |                 |

|                                                 |                        | Pressure - bar [psi]                                                                                                                  |          | Max. Cont. |            | Max. Inter. |                 |
|-------------------------------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------|----------|------------|------------|-------------|-----------------|
| <b>032</b>                                      |                        | 30 [435]                                                                                                                              | 60 [870] | 80 [1160]  | 100 [1450] | 120 [1740]  | 140 [2030]      |
| 32 cm <sup>3</sup> [2.0 in <sup>3</sup> ] / rev |                        | Intermittent Ratings - 10% of Operation                                                                                               |          |            |            |             |                 |
| Flow - lpm [gpm]                                | Max. Max. Inter. Cont. | Torque - Nm [lb-in], Speed rpm                                                                                                        |          |            |            |             | Theoretical rpm |
|                                                 |                        | 11 [97]                                                                                                                               | 24 [212] | 35 [310]   | 37 [327]   |             |                 |
| 5 [1.3]                                         |                        | 149                                                                                                                                   | 135      | 114        | 94         |             | 156             |
| 10 [2.6]                                        |                        | 308                                                                                                                                   | 284      | 270        | 250        | 46 [407]    | 313             |
| 15 [4.0]                                        |                        | 465                                                                                                                                   | 444      | 429        | 398        | 48 [425]    | 469             |
| 20 [5.3]                                        |                        | 624                                                                                                                                   | 589      | 575        | 557        | 46 [407]    | 625             |
| 25 [6.6]                                        |                        | 780                                                                                                                                   | 771      | 751        | 735        | 45 [398]    | 781             |
| 30 [7.9]                                        |                        | 931                                                                                                                                   | 908      | 895        | 876        | 45 [398]    | 938             |
| 35 [9.2]                                        |                        | 1086                                                                                                                                  | 1066     | 1051       | 1030       | 43 [381]    | 1094            |
| 40 [10.6]                                       |                        | 1240                                                                                                                                  | 1212     | 1190       | 1178       | 51 [451]    | 1250            |
| 45 [11.9]                                       |                        | 1400                                                                                                                                  | 1382     | 1366       | 1340       | 48 [425]    | 1406            |
| 50 [13.2]                                       |                        | 1550                                                                                                                                  | 1526     | 1500       | 1478       | 46 [407]    | 1563            |
| 55 [14.5]                                       |                        | 1674                                                                                                                                  | 1641     | 1617       | 1584       | 39 [345]    | 1719            |
| <b>Rotor Width</b>                              |                        | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input checked="" type="checkbox"/> |          |            |            |             |                 |
| 5.1 [200]                                       |                        | Theoretical Torque - Nm [lb-in]                                                                                                       |          |            |            |             |                 |
| mm [in]                                         |                        | 15 [135]                                                                                                                              | 31 [271] | 41 [361]   | 51 [451]   | 61 [541]    | 71 [631]        |
|                                                 |                        | Displacement tested at 45°C [113°F] with an oil viscosity of 46cSt [213 SUS]                                                          |          |            |            |             |                 |

► Performance data is typical. Performance of production units varies slightly from one motor to another. Operating at maximum continuous pressure and maximum continuous flow simultaneously is not recommended. For additional information on product testing please refer to page 6.

## DISPLACEMENT PERFORMANCE

|                                                 |             | Pressure - bar [psi]           |                  |                  |                  |                                         |                  | Max. Cont. | Max. Inter. |
|-------------------------------------------------|-------------|--------------------------------|------------------|------------------|------------------|-----------------------------------------|------------------|------------|-------------|
| 040                                             |             | 30 [435]                       | 60 [870]         | 80 [1160]        | 100 [1450]       | 120 [1740]                              | 140 [2030]       |            |             |
| 40 cm <sup>3</sup> [2.5 in <sup>3</sup> ] / rev |             |                                |                  |                  |                  |                                         |                  |            |             |
|                                                 |             | Torque - Nm [lb-in], Speed rpm |                  |                  |                  | Intermittent Ratings - 10% of Operation |                  |            |             |
| Flow - lpm [gpm]                                | 5 [1.3]     | 15 [133]<br>113                | 31 [274]<br>98   | 38 [336]<br>83   | 48 [425]<br>60   | 56 [496]<br>48                          |                  | 125        |             |
|                                                 | 10 [2.6]    | 14 [124]<br>238                | 31 [274]<br>222  | 41 [363]<br>204  | 54 [478]<br>182  | 62 [549]<br>161                         | 70 [619]<br>114  | 250        |             |
|                                                 | 20 [5.3]    | 13 [115]<br>482                | 32 [283]<br>458  | 41 [363]<br>442  | 53 [469]<br>423  | 65 [575]<br>402                         | 74 [655]<br>381  | 500        |             |
|                                                 | 30 [7.9]    | 12 [106]<br>730                | 30 [265]<br>704  | 39 [345]<br>687  | 51 [451]<br>668  | 63 [558]<br>646                         | 74 [655]<br>624  | 750        |             |
|                                                 | 40 [10.6]   | 10 [88]<br>968                 | 27 [239]<br>949  | 39 [345]<br>928  | 51 [451]<br>908  | 61 [540]<br>892                         | 72 [637]<br>870  | 1000       |             |
|                                                 | 50 [13.2]   | 7 [62]<br>1219                 | 25 [221]<br>1191 | 37 [327]<br>1173 | 49 [434]<br>1150 | 59 [522]<br>1127                        | 71 [628]<br>1107 | 1250       |             |
|                                                 | 60 [15.8]   | 4 [35]<br>1471                 | 23 [204]<br>1428 | 34 [301]<br>1411 | 46 [407]<br>1387 | 56 [496]<br>1369                        | 68 [602]<br>1341 | 1500       |             |
|                                                 | 70 [18.5]   |                                | 16 [142]<br>1670 | 30 [265]<br>1653 | 41 [363]<br>1627 | 52 [460]<br>1612                        | 64 [566]<br>1598 | 2000       |             |
| Max. Max. Inter. Cont.                          |             |                                |                  |                  |                  |                                         |                  |            |             |
|                                                 | Rotor Width |                                |                  |                  |                  |                                         |                  |            |             |
| 6.6 [260]                                       |             |                                |                  |                  |                  |                                         |                  |            |             |
| mm [in]                                         |             |                                |                  |                  |                  |                                         |                  |            |             |
|                                                 |             | 19 [168]                       | 38 [336]         | 50 [442]         | 64 [566]         | 76 [673]                                | 89 [788]         |            |             |
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|                                                 |             |                                |                  |                  |                  |                                         |                  |            |             |
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|                                                 |             |                                |                  |                  |                  |                                         |                  |            |             |

## DISPLACEMENT PERFORMANCE

|                                                                              |                  | Pressure - bar [psi]                                                                                                                  |                  |                  |                  |                  |                   | Max. Cont.                              | Max. Inter.        |
|------------------------------------------------------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|------------------|------------------|-------------------|-----------------------------------------|--------------------|
| 060                                                                          |                  | 30 [435]                                                                                                                              | 60 [870]         | 80 [1160]        | 100 [1450]       | 120 [1740]       | 140 [2030]        | 160 [2320]                              | 175 [2540]         |
| 59 cm³ [3.6 in³] / rev                                                       |                  |                                                                                                                                       |                  |                  |                  |                  |                   |                                         |                    |
|                                                                              |                  | Torque - Nm [lb-in], Speed rpm                                                                                                        |                  |                  |                  |                  |                   | Intermittent Ratings - 10% of Operation |                    |
| Max. Cont.                                                                   | Flow - lpm [gpm] | 20 [177]<br>83                                                                                                                        | 46 [407]<br>79   | 65 [575]<br>72   | 80 [708]<br>64   | 95 [841]<br>51   | 112 [991]<br>38   |                                         |                    |
|                                                                              | 10 [2.6]         | 22 [195]<br>169                                                                                                                       | 47 [416]<br>164  | 66 [584]<br>155  | 81 [717]<br>142  | 96 [850]<br>135  | 113 [1000]<br>124 | 125 [1106]<br>108                       | 136 [1204]<br>88   |
|                                                                              | 20 [5.3]         | 20 [177]<br>338                                                                                                                       | 45 [398]<br>332  | 64 [566]<br>320  | 80 [708]<br>309  | 93 [823]<br>290  | 111 [982]<br>276  | 123 [1088]<br>245                       | 134 [1186]<br>222  |
|                                                                              | 30 [7.9]         | 17 [150]<br>507                                                                                                                       | 43 [381]<br>502  | 62 [549]<br>493  | 76 [673]<br>482  | 89 [788]<br>468  | 109 [965]<br>454  | 121 [1071]<br>424                       | 131 [1159]<br>400  |
|                                                                              | 40 [10.6]        | 14 [124]<br>678                                                                                                                       | 41 [363]<br>669  | 58 [513]<br>660  | 73 [646]<br>645  | 87 [770]<br>630  | 105 [929]<br>616  | 117 [1035]<br>594                       | 127 [1124]<br>582  |
|                                                                              | 50 [13.2]        | 10 [88]<br>845                                                                                                                        | 37 [327]<br>841  | 55 [487]<br>833  | 70 [619]<br>818  | 84 [743]<br>805  | 102 [903]<br>792  | 113 [1000]<br>770                       | 122 [1080]<br>754  |
|                                                                              | 60 [15.8]        | 7 [62]<br>1014                                                                                                                        | 34 [301]<br>1005 | 52 [460]<br>999  | 66 [584]<br>992  | 82 [726]<br>982  | 99 [876]<br>968   | 109 [965]<br>956                        | 118 [1044]<br>933  |
|                                                                              | 70 [18.5]        | 4 [35]<br>1185                                                                                                                        | 27 [239]<br>1182 | 47 [416]<br>1180 | 62 [549]<br>1175 | 76 [673]<br>1158 | 93 [823]<br>1144  | 104 [920]<br>1128                       | 114 [1009]<br>1112 |
| Max. Inter.                                                                  | 75 [19.8]        |                                                                                                                                       | 22 [195]<br>1271 | 43 [381]<br>1265 | 58 [513]<br>1256 | 73 [646]<br>1241 | 86 [761]<br>1228  | 100 [885]<br>1212                       | 110 [973]<br>1196  |
| Rotor Width                                                                  |                  | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input checked="" type="checkbox"/> |                  |                  |                  |                  |                   |                                         |                    |
| 8.0 [314]                                                                    |                  | Theoretical Torque - Nm [lb-in]                                                                                                       |                  |                  |                  |                  |                   |                                         |                    |
|                                                                              |                  | 28 [249]                                                                                                                              | 56 [499]         | 75 [665]         | 94 [831]         | 113 [998]        | 132 [1164]        | 150 [1330]                              | 164 [1455]         |
| mm [in]                                                                      |                  |                                                                                                                                       |                  |                  |                  |                  |                   |                                         |                    |
| Displacement tested at 45°C [113°F] with an oil viscosity of 46cSt [213 SUS] |                  |                                                                                                                                       |                  |                  |                  |                  |                   |                                         |                    |

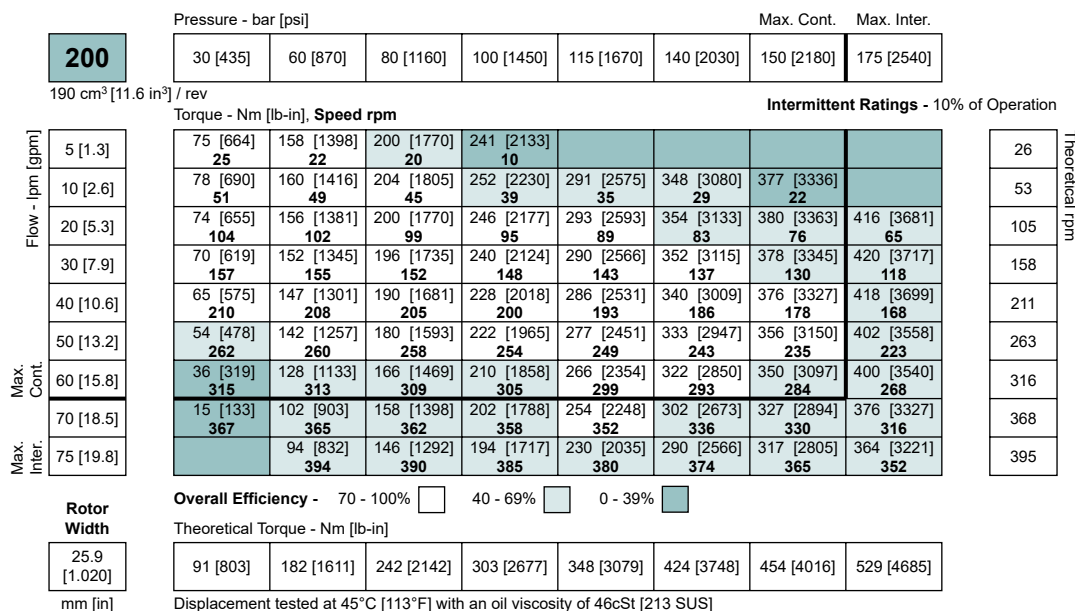
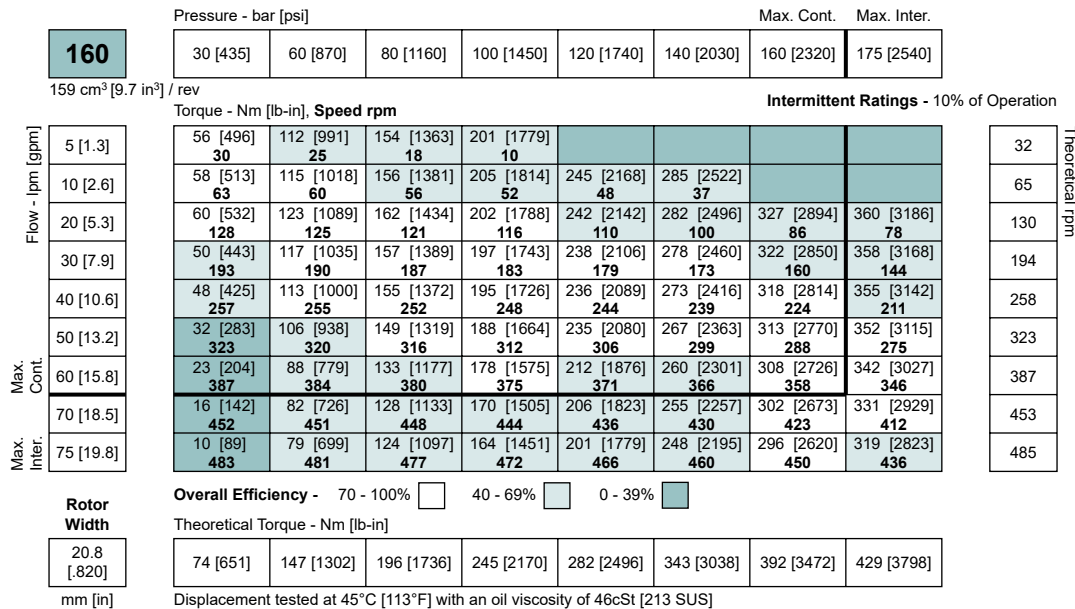
## DISPLACEMENT PERFORMANCE

|                                                 |           | Pressure - bar [psi]                                                                                                       |                        |                         |                          |                          |                          | Max. Cont.                              | Max. Inter. |
|-------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------|--------------------------|--------------------------|--------------------------|-----------------------------------------|-------------|
| <b>100</b>                                      |           | 30 [435]                                                                                                                   | 60 [870]               | 80 [1160]               | 100 [1450]               | 120 [1740]               | 140 [2030]               | 160 [2320]                              | 175 [2540]  |
| 96 cm <sup>3</sup> [5.9 in <sup>3</sup> ] / rev |           | Torque - Nm [lb-in], Speed rpm                                                                                             |                        |                         |                          |                          |                          | Intermittent Ratings - 10% of Operation |             |
| Flow - lpm [gpm]                                | 5 [1.3]   | 43 [381]<br><b>51</b>                                                                                                      | 82 [726]<br><b>42</b>  | 109 [965]<br><b>35</b>  | 131 [1159]<br><b>25</b>  |                          |                          |                                         | 52          |
|                                                 | 10 [2.6]  | 43 [381]<br><b>99</b>                                                                                                      | 84 [743]<br><b>93</b>  | 108 [956]<br><b>84</b>  | 133 [1177]<br><b>72</b>  | 152 [1345]<br><b>62</b>  | 180 [1593]<br><b>48</b>  | 197 [1743]<br><b>24</b>                 | 104         |
|                                                 | 20 [5.3]  | 41 [363]<br><b>205</b>                                                                                                     | 79 [699]<br><b>202</b> | 107 [947]<br><b>197</b> | 127 [1124]<br><b>192</b> | 154 [1363]<br><b>182</b> | 178 [1575]<br><b>172</b> | 200 [1770]<br><b>140</b>                | 208         |
|                                                 | 30 [7.9]  | 39 [345]<br><b>311</b>                                                                                                     | 74 [655]<br><b>307</b> | 101 [894]<br><b>301</b> | 126 [1115]<br><b>294</b> | 152 [1345]<br><b>283</b> | 176 [1558]<br><b>271</b> | 198 [1752]<br><b>258</b>                | 313         |
|                                                 | 40 [10.6] | 29 [257]<br><b>413</b>                                                                                                     | 63 [558]<br><b>410</b> | 93 [823]<br><b>406</b>  | 121 [1071]<br><b>399</b> | 150 [1327]<br><b>388</b> | 172 [1522]<br><b>379</b> | 195 [1726]<br><b>368</b>                | 417         |
|                                                 | 50 [13.2] | 20 [177]<br><b>519</b>                                                                                                     | 52 [460]<br><b>515</b> | 85 [752]<br><b>510</b>  | 115 [1018]<br><b>503</b> | 148 [1310]<br><b>492</b> | 169 [1496]<br><b>480</b> | 193 [1708]<br><b>464</b>                | 521         |
|                                                 | 60 [15.8] | 17 [150]<br><b>624</b>                                                                                                     | 53 [469]<br><b>620</b> | 83 [735]<br><b>615</b>  | 111 [982]<br><b>608</b>  | 138 [1221]<br><b>600</b> | 165 [1460]<br><b>582</b> | 183 [1619]<br><b>565</b>                | 625         |
|                                                 | 70 [18.5] | 11 [97]<br><b>728</b>                                                                                                      | 42 [372]<br><b>726</b> | 73 [646]<br><b>723</b>  | 93 [823]<br><b>714</b>   | 126 [1115]<br><b>706</b> | 159 [1407]<br><b>684</b> | 172 [1522]<br><b>668</b>                | 729         |
| Max. Cont.                                      |           |                                                                                                                            |                        |                         |                          |                          |                          |                                         |             |
| Max. Inter.                                     |           |                                                                                                                            |                        |                         |                          |                          |                          |                                         |             |
| Rotor Width                                     |           | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/> |                        |                         |                          |                          |                          |                                         |             |
| 13.0 [510]                                      |           | Theoretical Torque - Nm [lb-in]                                                                                            |                        |                         |                          |                          |                          |                                         |             |
| mm [in]                                         |           | 46 [407]                                                                                                                   | 92 [814]               | 122 [1080]              | 153 [1354]               | 183 [1623]               | 214 [1894]               | 245 [2168]                              | 268 [2372]  |
|                                                 |           | Displacement tested at 45°C [113°F] with an oil viscosity of 46cSt [213 SUS]                                               |                        |                         |                          |                          |                          |                                         |             |

|                                                  |           | Pressure - bar [psi]                                                                                                       |                        |                          |                          |                          |                          | Max. Cont.                              | Max. Inter. |
|--------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-----------------------------------------|-------------|
| <b>125</b>                                       |           | 30 [435]                                                                                                                   | 60 [870]               | 80 [1160]                | 100 [1450]               | 120 [1740]               | 140 [2030]               | 160 [2320]                              | 175 [2540]  |
| 125 cm <sup>3</sup> [7.6 in <sup>3</sup> ] / rev |           | Torque - Nm [lb-in], Speed rpm                                                                                             |                        |                          |                          |                          |                          | Intermittent Ratings - 10% of Operation |             |
| Flow - lpm [gpm]                                 | 5 [1.3]   | 52 [460]<br><b>38</b>                                                                                                      | 95 [841]<br><b>35</b>  | 135 [1195]<br><b>32</b>  | 168 [1487]<br><b>27</b>  |                          |                          |                                         | 40          |
|                                                  | 10 [2.6]  | 50 [442]<br><b>78</b>                                                                                                      | 98 [867]<br><b>74</b>  | 138 [1221]<br><b>69</b>  | 172 [1522]<br><b>62</b>  | 190 [1681]<br><b>54</b>  | 234 [2071]<br><b>45</b>  | 258 [2283]<br><b>35</b>                 | 80          |
|                                                  | 20 [5.3]  | 50 [442]<br><b>158</b>                                                                                                     | 96 [850]<br><b>152</b> | 132 [1168]<br><b>144</b> | 168 [1487]<br><b>135</b> | 202 [1788]<br><b>124</b> | 236 [2088]<br><b>110</b> | 256 [2265]<br><b>94</b>                 | 160         |
|                                                  | 30 [7.9]  | 44 [389]<br><b>238</b>                                                                                                     | 92 [814]<br><b>232</b> | 126 [1115]<br><b>225</b> | 164 [1451]<br><b>215</b> | 198 [1752]<br><b>210</b> | 232 [2053]<br><b>198</b> | 262 [2319]<br><b>168</b>                | 240         |
|                                                  | 40 [10.6] | 35 [310]<br><b>319</b>                                                                                                     | 82 [726]<br><b>316</b> | 118 [1044]<br><b>312</b> | 160 [1416]<br><b>308</b> | 193 [1708]<br><b>300</b> | 226 [2000]<br><b>288</b> | 252 [2230]<br><b>262</b>                | 320         |
|                                                  | 50 [13.2] | 31 [274]<br><b>399</b>                                                                                                     | 77 [681]<br><b>396</b> | 108 [956]<br><b>392</b>  | 155 [1372]<br><b>383</b> | 182 [1611]<br><b>368</b> | 220 [1947]<br><b>354</b> | 238 [2106]<br><b>338</b>                | 400         |
|                                                  | 60 [15.8] | 15 [133]<br><b>479</b>                                                                                                     | 64 [566]<br><b>478</b> | 97 [858]<br><b>475</b>   | 146 [1292]<br><b>470</b> | 166 [1469]<br><b>463</b> | 210 [1858]<br><b>454</b> | 224 [1982]<br><b>443</b>                | 480         |
|                                                  | 70 [18.5] | 8 [71]<br><b>559</b>                                                                                                       | 50 [442]<br><b>555</b> | 90 [796]<br><b>548</b>   | 140 [1239]<br><b>538</b> | 162 [1434]<br><b>524</b> | 204 [1805]<br><b>516</b> | 209 [1850]<br><b>500</b>                | 560         |
| Max. Cont.                                       |           |                                                                                                                            |                        |                          |                          |                          |                          |                                         |             |
| Max. Inter.                                      |           |                                                                                                                            |                        |                          |                          |                          |                          |                                         |             |
| Rotor Width                                      |           | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/> |                        |                          |                          |                          |                          |                                         |             |
| 16.8 [660]                                       |           | Theoretical Torque - Nm [lb-in]                                                                                            |                        |                          |                          |                          |                          |                                         |             |
| mm [in]                                          |           | 60 [531]                                                                                                                   | 119 [1053]             | 159 [1407]               | 199 [1761]               | 239 [2115]               | 279 [2469]               | 318 [2814]                              | 348 [3080]  |
|                                                  |           | Displacement tested at 45°C [113°F] with an oil viscosity of 46cSt [213 SUS]                                               |                        |                          |                          |                          |                          |                                         |             |

► Performance data is typical. Performance of production units varies slightly from one motor to another. Operating at maximum continuous pressure and maximum continuous flow simultaneously is not recommended. For additional information on product testing please refer to page 6.

## DISPLACEMENT PERFORMANCE



► Performance data is typical. Performance of production units varies slightly from one motor to another. Operating at maximum continuous pressure and maximum continuous flow simultaneously is not recommended. For additional information on product testing please refer to page 6.

## DISPLACEMENT PERFORMANCE

|                                                   |           | Pressure - bar [psi]                                                                                                       |                          |                          |                          | Max. Cont.                              |                          | Max. Inter.              |                          |
|---------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|-----------------------------------------|--------------------------|--------------------------|--------------------------|
| <b>250</b>                                        |           | 30 [435]                                                                                                                   | 60 [870]                 | 85 [1230]                | 100 [1450]               | 125 [1810]                              | 140 [2030]               | 160 [2320]               | 175 [2540]               |
| 240 cm <sup>3</sup> [14.6 in <sup>3</sup> ] / rev |           | Torque - Nm [lb-in], Speed rpm                                                                                             |                          |                          |                          | Intermittent Ratings - 10% of Operation |                          |                          |                          |
| Flow - lpm [gpm]                                  | 5 [1.3]   | 89 [788]<br><b>19</b>                                                                                                      | 194 [1717]<br><b>16</b>  | 264 [2336]<br><b>10</b>  | 326 [2885]<br><b>6</b>   |                                         |                          |                          |                          |
|                                                   | 10 [2.6]  | 92 [814]<br><b>40</b>                                                                                                      | 196 [1735]<br><b>36</b>  | 268 [2372]<br><b>32</b>  | 329 [2912]<br><b>21</b>  | 394 [3487]<br><b>10</b>                 |                          |                          |                          |
|                                                   | 20 [5.3]  | 90 [796]<br><b>81</b>                                                                                                      | 192 [1699]<br><b>77</b>  | 264 [2336]<br><b>72</b>  | 321 [2841]<br><b>65</b>  | 397 [3513]<br><b>50</b>                 | 445 [3938]<br><b>42</b>  | 510 [4513]<br><b>36</b>  | 554 [4903]<br><b>23</b>  |
|                                                   | 30 [7.9]  | 86 [761]<br><b>124</b>                                                                                                     | 185 [1637]<br><b>121</b> | 256 [2265]<br><b>115</b> | 314 [2779]<br><b>106</b> | 392 [3469]<br><b>94</b>                 | 439 [3855]<br><b>84</b>  | 502 [4442]<br><b>76</b>  | 557 [4929]<br><b>61</b>  |
|                                                   | 40 [10.6] | 82 [726]<br><b>165</b>                                                                                                     | 179 [1584]<br><b>162</b> | 248 [2195]<br><b>158</b> | 305 [2699]<br><b>153</b> | 384 [3398]<br><b>144</b>                | 431 [3814]<br><b>135</b> | 486 [4301]<br><b>125</b> | 545 [4823]<br><b>113</b> |
| Max. Cont.                                        | 50 [13.2] | 69 [611]<br><b>207</b>                                                                                                     | 169 [1496]<br><b>203</b> | 243 [2150]<br><b>195</b> | 293 [2593]<br><b>189</b> | 378 [3345]<br><b>183</b>                | 421 [3726]<br><b>170</b> | 475 [4204]<br><b>157</b> | 526 [4655]<br><b>138</b> |
|                                                   | 60 [15.8] | 48 [425]<br><b>250</b>                                                                                                     | 152 [1345]<br><b>247</b> | 230 [2035]<br><b>243</b> | 282 [2496]<br><b>236</b> | 364 [3221]<br><b>222</b>                | 407 [3602]<br><b>216</b> | 456 [4035]<br><b>205</b> | 508 [4496]<br><b>188</b> |
| Max. Inter.                                       | 70 [18.5] | 37 [327]<br><b>291</b>                                                                                                     | 139 [1230]<br><b>285</b> | 219 [1938]<br><b>278</b> | 263 [2327]<br><b>271</b> | 343 [3035]<br><b>256</b>                | 386 [3416]<br><b>249</b> | 441 [3903]<br><b>234</b> | 496 [4389]<br><b>221</b> |
|                                                   | 75 [19.8] | 26 [230]<br><b>312</b>                                                                                                     | 128 [1133]<br><b>310</b> | 205 [1814]<br><b>307</b> | 245 [2168]<br><b>302</b> | 328 [2903]<br><b>294</b>                | 374 [3310]<br><b>270</b> | 428 [3788]<br><b>254</b> | 481 [4257]<br><b>242</b> |
| Rotor Width                                       |           | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/> |                          |                          |                          |                                         |                          |                          |                          |
| 32.5 [1.280] mm [in]                              |           | Theoretical Torque - Nm [lb-in]                                                                                            |                          |                          |                          |                                         |                          |                          |                          |
|                                                   |           | 115 [1018]                                                                                                                 | 229 [2027]               | 325 [2875]               | 382 [3381]               | 478 [4230]                              | 535 [4735]               | 611 [5407]               | 669 [5920]               |
|                                                   |           | Displacement tested at 45°C [113°F] with an oil viscosity of 46cSt [213 SUS]                                               |                          |                          |                          |                                         |                          |                          |                          |

|                                                   |           | Pressure - bar [psi]                                                                                                       |                          |                          |                          | Max. Cont.                              |                          | Max. Inter.              |                          |
|---------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|-----------------------------------------|--------------------------|--------------------------|--------------------------|
| <b>315</b>                                        |           | 30 [435]                                                                                                                   | 50 [725]                 | 70 [1015]                | 85 [1230]                | 100 [1450]                              | 120 [1740]               | 140 [2030]               | 160 [2320]               |
| 303 cm <sup>3</sup> [18.5 in <sup>3</sup> ] / rev |           | Torque - Nm [lb-in], Speed rpm                                                                                             |                          |                          |                          | Intermittent Ratings - 10% of Operation |                          |                          |                          |
| Flow - lpm [gpm]                                  | 5 [1.3]   | 123 [1089]<br><b>16</b>                                                                                                    | 200 [1770]<br><b>13</b>  | 282 [2496]<br><b>10</b>  | 344 [3044]<br><b>6</b>   |                                         |                          |                          |                          |
|                                                   | 10 [2.6]  | 117 [1035]<br><b>31</b>                                                                                                    | 194 [1717]<br><b>29</b>  | 277 [2451]<br><b>25</b>  | 342 [3027]<br><b>21</b>  | 399 [3531]<br><b>17</b>                 |                          |                          |                          |
|                                                   | 20 [5.3]  | 112 [991]<br><b>64</b>                                                                                                     | 196 [1735]<br><b>62</b>  | 275 [2434]<br><b>58</b>  | 340 [3009]<br><b>54</b>  | 397 [3513]<br><b>49</b>                 | 460 [4071]<br><b>43</b>  | 526 [4655]<br><b>32</b>  | 605 [5354]<br><b>23</b>  |
|                                                   | 30 [7.9]  | 104 [920]<br><b>98</b>                                                                                                     | 183 [1620]<br><b>94</b>  | 267 [2363]<br><b>90</b>  | 322 [2850]<br><b>85</b>  | 390 [3452]<br><b>79</b>                 | 448 [3965]<br><b>70</b>  | 520 [4602]<br><b>62</b>  | 602 [5328]<br><b>56</b>  |
|                                                   | 40 [10.6] | 86 [761]<br><b>129</b>                                                                                                     | 168 [1487]<br><b>126</b> | 252 [2230]<br><b>122</b> | 304 [2690]<br><b>118</b> | 365 [3230]<br><b>113</b>                | 440 [3894]<br><b>106</b> | 515 [4558]<br><b>99</b>  | 588 [5204]<br><b>76</b>  |
| Max. Cont.                                        | 50 [13.2] | 73 [646]<br><b>164</b>                                                                                                     | 156 [1381]<br><b>160</b> | 238 [2106]<br><b>155</b> | 288 [2549]<br><b>150</b> | 350 [3098]<br><b>144</b>                | 424 [3752]<br><b>136</b> | 500 [4425]<br><b>127</b> | 571 [5053]<br><b>119</b> |
|                                                   | 60 [15.8] | 60 [531]<br><b>195</b>                                                                                                     | 140 [1239]<br><b>192</b> | 223 [1974]<br><b>188</b> | 270 [2390]<br><b>183</b> | 325 [2876]<br><b>176</b>                | 396 [3505]<br><b>170</b> | 480 [4248]<br><b>164</b> | 546 [4832]<br><b>157</b> |
| Max. Inter.                                       | 70 [18.5] | 37 [327]<br><b>228</b>                                                                                                     | 122 [1080]<br><b>226</b> | 186 [1646]<br><b>223</b> | 254 [2248]<br><b>218</b> | 309 [2735]<br><b>212</b>                | 368 [3257]<br><b>206</b> | 455 [4027]<br><b>196</b> | 527 [4664]<br><b>188</b> |
|                                                   | 75 [19.8] | 23 [204]<br><b>245</b>                                                                                                     | 100 [885]<br><b>242</b>  | 174 [1540]<br><b>238</b> | 237 [2097]<br><b>233</b> | 293 [2593]<br><b>228</b>                | 359 [3177]<br><b>222</b> | 444 [3929]<br><b>215</b> | 516 [4567]<br><b>206</b> |
| Rotor Width                                       |           | Overall Efficiency - 60 - 100% <input type="checkbox"/> 40 - 59% <input type="checkbox"/> 0 - 39% <input type="checkbox"/> |                          |                          |                          |                                         |                          |                          |                          |
| 40.9 [1.610] mm [in]                              |           | Theoretical Torque - Nm [lb-in]                                                                                            |                          |                          |                          |                                         |                          |                          |                          |
|                                                   |           | 145 [1283]                                                                                                                 | 241 [2133]               | 338 [2991]               | 410 [3628]               | 482 [4265]                              | 579 [5124]               | 675 [5973]               | 772 [6832]               |
|                                                   |           | Displacement tested at 45°C [113°F] with an oil viscosity of 46cSt [213 SUS]                                               |                          |                          |                          |                                         |                          |                          |                          |

► Performance data is typical. Performance of production units varies slightly from one motor to another. Operating at maximum continuous pressure and maximum continuous flow simultaneously is not recommended. For additional information on product testing please refer to page 6.

## DISPLACEMENT PERFORMANCE

|                                                   |            | Pressure - bar [psi]                                                                                                       |                   |                   |                   | Max. Cont.        |                   | Max. Inter.       |                   |
|---------------------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <b>400</b>                                        |            | 30 [435]                                                                                                                   | 45 [650]          | 55 [800]          | 65 [940]          | 80 [1160]         | 95 [1380]         | 110 [1595]        | 125 [1810]        |
| 388 cm <sup>3</sup> [23.7 in <sup>3</sup> ] / rev |            | Intermittent Ratings - 10% of Operation                                                                                    |                   |                   |                   |                   |                   |                   |                   |
| Flow - lpm [gpm]                                  | Max. Cont. | Torque - Nm [lb-in], Speed rpm                                                                                             |                   |                   |                   |                   |                   |                   |                   |
|                                                   |            | 5 [1.3]                                                                                                                    | 10 [2.6]          | 20 [5.3]          | 30 [7.9]          | 40 [10.6]         | 50 [13.2]         | 60 [15.8]         | 70 [18.5]         |
| Max. Inter.                                       | 5 [1.3]    | 144 [1274]<br>11                                                                                                           | 220 [1947]<br>10  | 270 [2389]<br>7   | 338 [2991]<br>5   |                   |                   |                   |                   |
|                                                   | 10 [2.6]   | 146 [1292]<br>25                                                                                                           | 223 [1973]<br>23  | 272 [2407]<br>20  | 340 [3009]<br>16  | 412 [3646]<br>10  | 488 [4319]<br>6   |                   |                   |
|                                                   | 20 [5.3]   | 145 [1283]<br>51                                                                                                           | 219 [1938]<br>50  | 269 [2381]<br>48  | 333 [2347]<br>45  | 408 [3611]<br>40  | 484 [4283]<br>35  | 548 [4850]<br>27  |                   |
|                                                   | 30 [7.9]   | 138 [1221]<br>76                                                                                                           | 215 [1903]<br>75  | 262 [2319]<br>73  | 322 [2850]<br>70  | 402 [3558]<br>67  | 472 [4177]<br>59  | 546 [4832]<br>47  | 625 [5531]<br>36  |
|                                                   | 40 [10.6]  | 120 [1062]<br>103                                                                                                          | 204 [1805]<br>102 | 250 [2212]<br>100 | 310 [2743]<br>96  | 393 [3478]<br>89  | 458 [4053]<br>82  | 535 [4735]<br>73  | 618 [5469]<br>62  |
| Max. Inter.                                       | 50 [13.2]  | 100 [885]<br>129                                                                                                           | 186 [1646]<br>128 | 238 [2106]<br>125 | 295 [2611]<br>123 | 374 [3310]<br>119 | 446 [3947]<br>112 | 520 [4602]<br>102 | 600 [5310]<br>91  |
|                                                   | 60 [15.8]  | 76 [673]<br>155                                                                                                            | 166 [1469]<br>153 | 222 [1965]<br>150 | 282 [2496]<br>148 | 358 [3168]<br>143 | 427 [3779]<br>139 | 496 [4389]<br>130 | 576 [5097]<br>121 |
|                                                   | 70 [18.5]  | 50 [442]<br>179                                                                                                            | 145 [1283]<br>177 | 194 [1717]<br>174 | 250 [2212]<br>170 | 334 [2956]<br>165 | 402 [3558]<br>158 | 472 [4177]<br>152 | 540 [4779]<br>144 |
|                                                   | 75 [19.8]  | 42 [372]<br>189                                                                                                            | 135 [1195]<br>187 | 176 [1558]<br>184 | 226 [2000]<br>180 | 306 [2708]<br>175 | 373 [3301]<br>167 | 445 [3938]<br>160 | 520 [4602]<br>150 |
|                                                   |            |                                                                                                                            |                   |                   |                   |                   |                   |                   |                   |
| Rotor Width                                       |            | Overall Efficiency - 70 - 100% <input type="checkbox"/> 40 - 69% <input type="checkbox"/> 0 - 39% <input type="checkbox"/> |                   |                   |                   |                   |                   |                   |                   |
| 52.1 [2.050] mm [in]                              |            | Theoretical Torque - Nm [lb-in]                                                                                            |                   |                   |                   |                   |                   |                   |                   |
|                                                   |            | 185 [1640]                                                                                                                 | 278 [2460]        | 340 [3007]        | 402 [3554]        | 494 [4374]        | 587 [5194]        | 680 [6014]        | 772 [6834]        |
|                                                   |            | Displacement tested at 45°C [113°F] with an oil viscosity of 46cSt [213 SUS]                                               |                   |                   |                   |                   |                   |                   |                   |

► Performance data is typical. Performance of production units varies slightly from one motor to another. Operating at maximum continuous pressure and maximum continuous flow simultaneously is not recommended. For additional information on product testing please refer to page 6.



## HOUSINGS

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

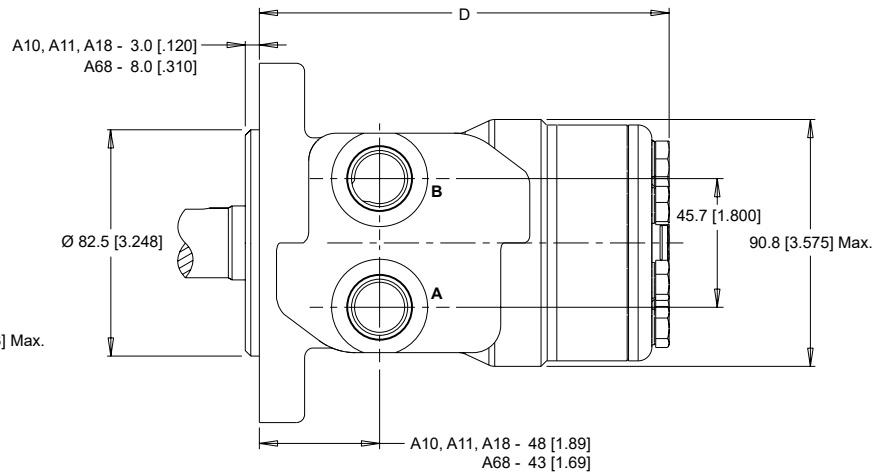
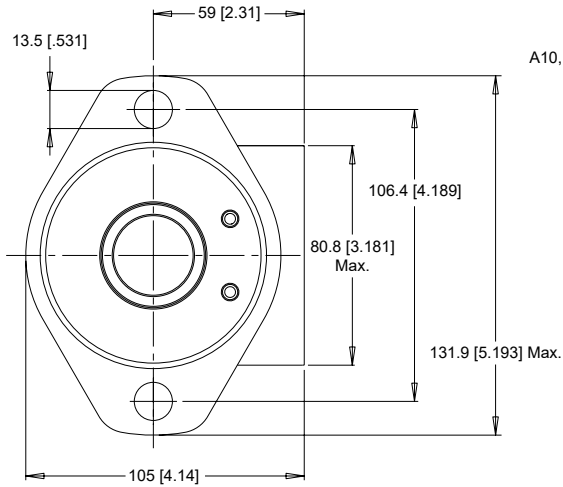
### 2-HOLE, SAE A MOUNT, ALIGNED PORTS

**A10** 1/2-14 NPT

**A11** 7/8-14 UNF

**A18** G 1/2

**A68** G 1/2 (TP)

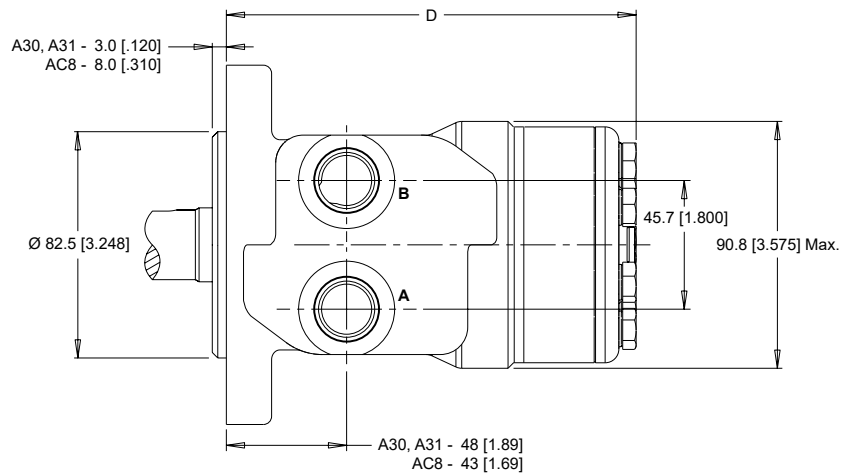
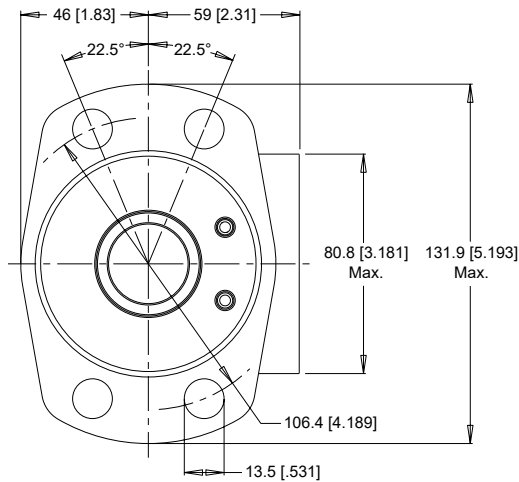


### 4-HOLE, MAGNETO MOUNT, ALIGNED PORTS

**A30** 1/2-14 NPT

**A31** 7/8-14 UNF

**AC8** G 1/2 (TP)

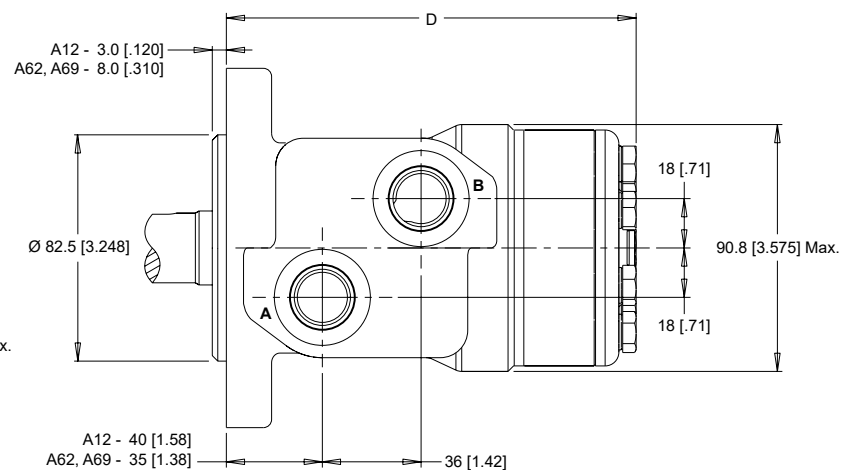
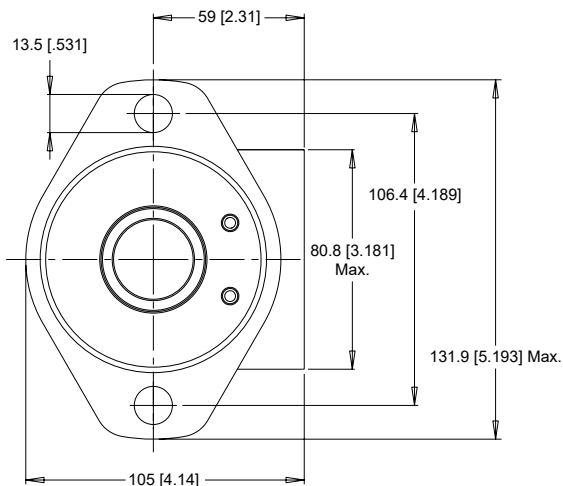


### 2-HOLE, SAE A MOUNT, OFFSET PORTS

**A12** G 1/2

**A62** G 1/2 (TP)

**A69** 7/8-14 UNF (TP)



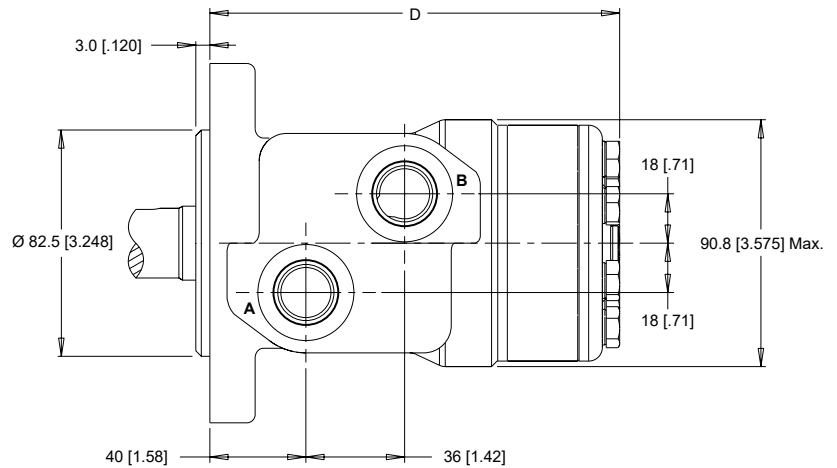
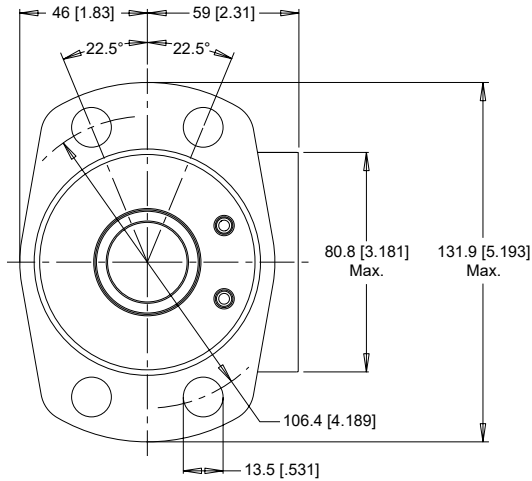
► Dimension D is charted on page 40. ► (TP) - Taller Pilot Height. Refer to detailed drawing for dimensional differences.

## HOUSINGS

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

### 4-HOLE, MAGNETO MOUNT, OFFSET PORTS

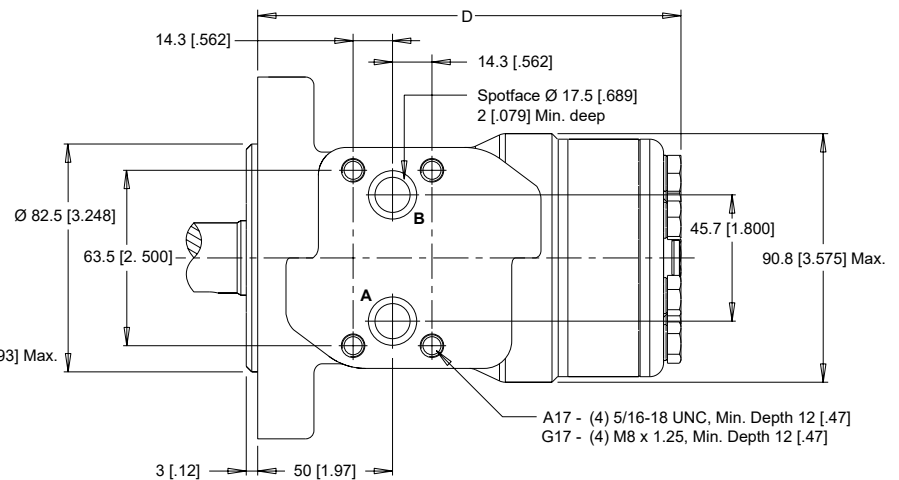
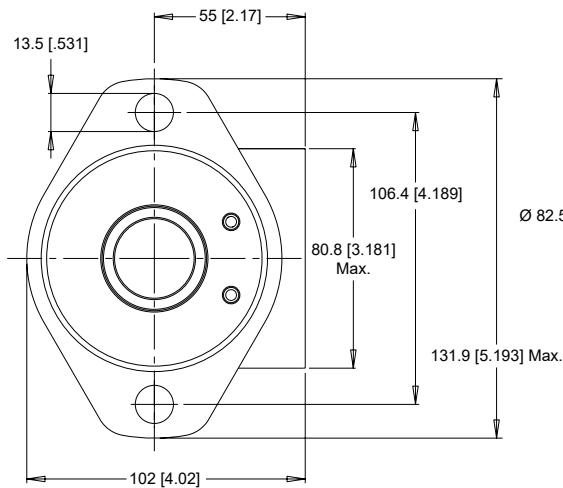
**A32** G 1/2



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

**A17** 1/2" Drilled

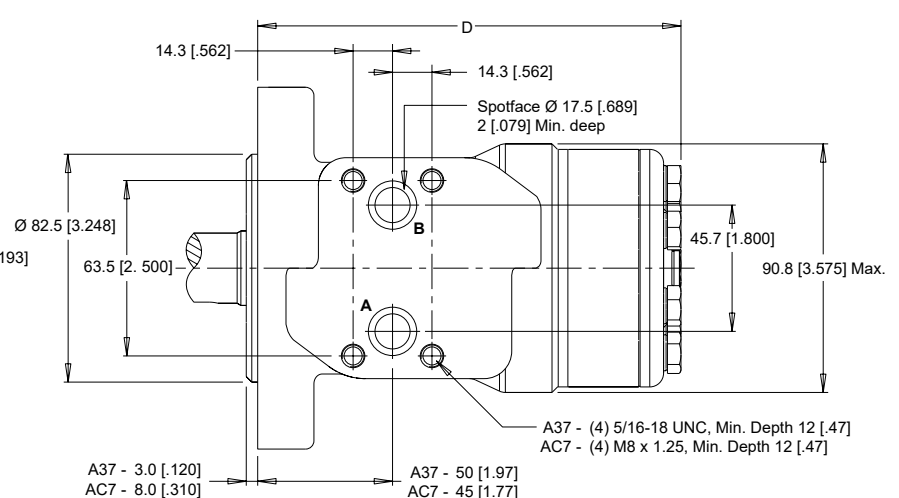
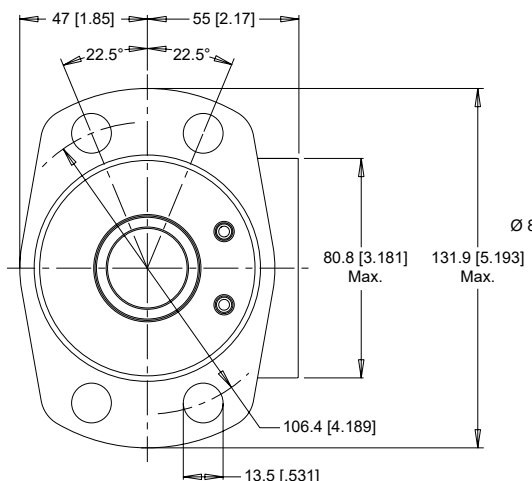
**G17** 1/2" Drilled



### 4-HOLE, MAGNETO MOUNT, ALIGNED MANIFOLD PORTS

**A37** 1/2" Drilled

**AC7** 1/2" Drilled (TP)



► Dimension D is charted on page 40. ► (TP) - Taller Pilot Height. Refer to detailed drawing for dimensional differences.

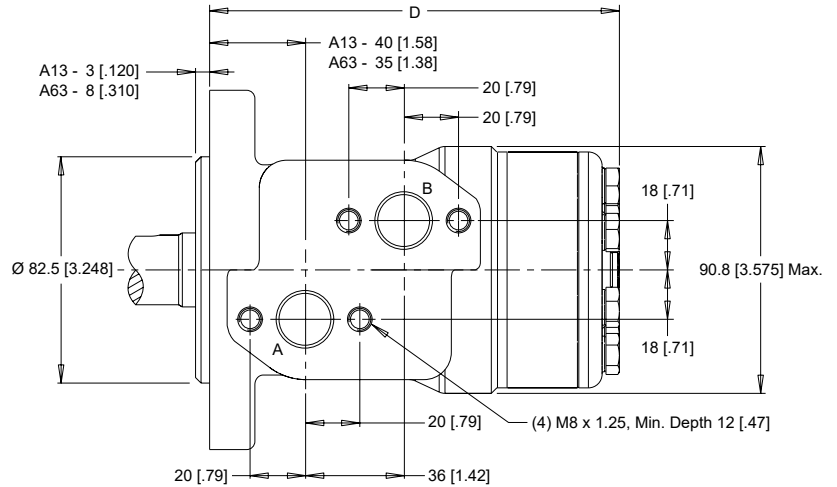
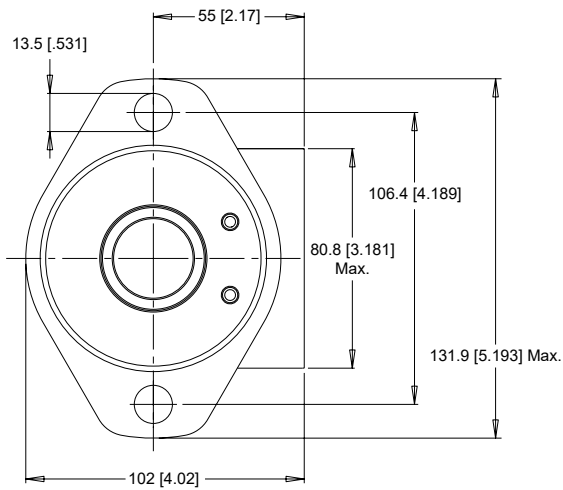
## HOUSINGS

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

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

**A13** G 1/2

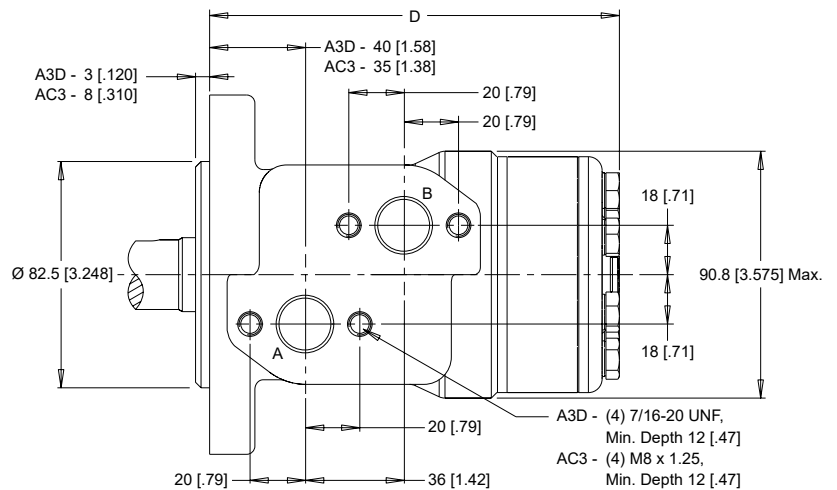
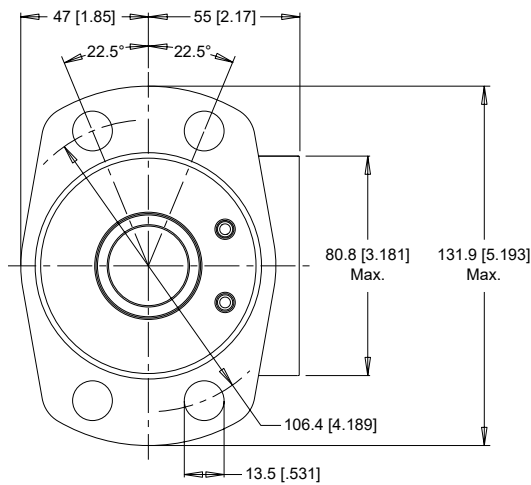
**A63** G 1/2 (TP)



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

**A3D** 7/8-14 UNF

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

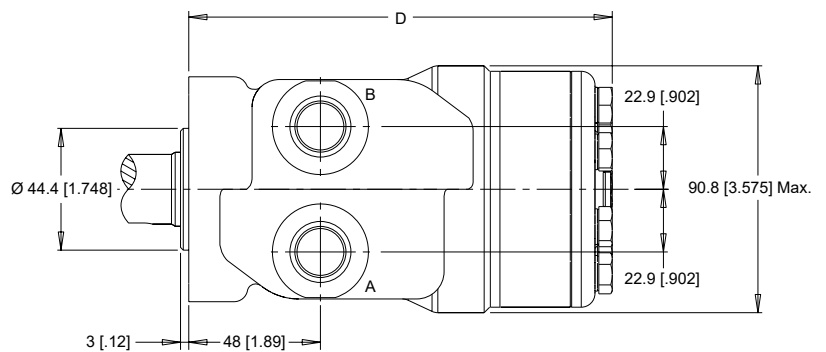
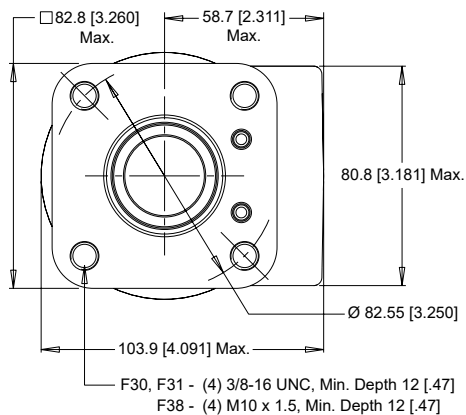


### 4-HOLE, SQUARE MOUNT, ALIGNED PORTS

**F30** 1/2-14 NPT

**F31** 7/8-14 UNF

**F38** G 1/2



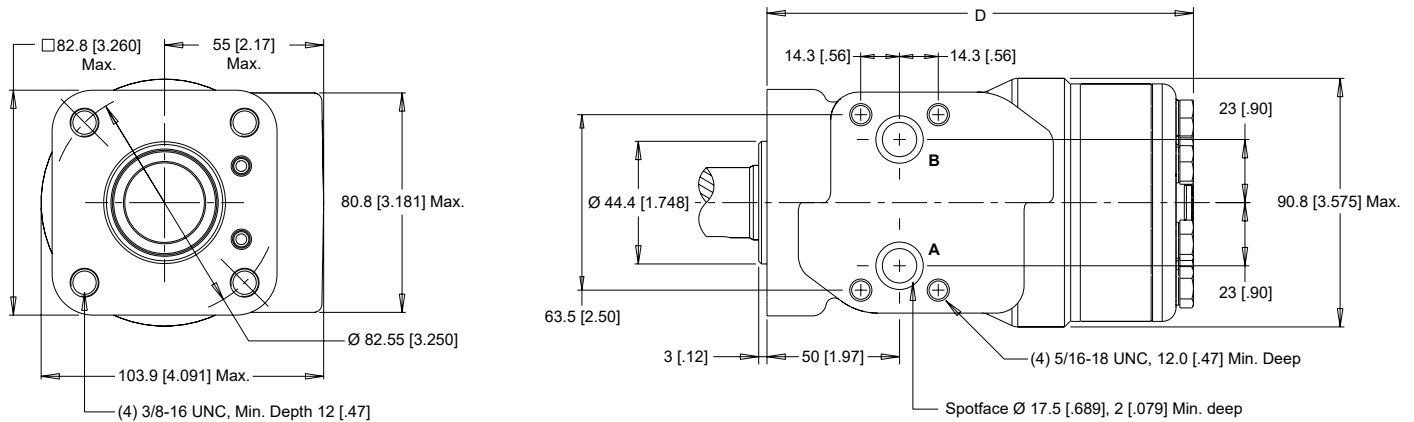
► Dimension D is charted on page 40. ► (TP) - Taller Pilot Height. Refer to detailed drawing for dimensional differences.

## HOUSINGS

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

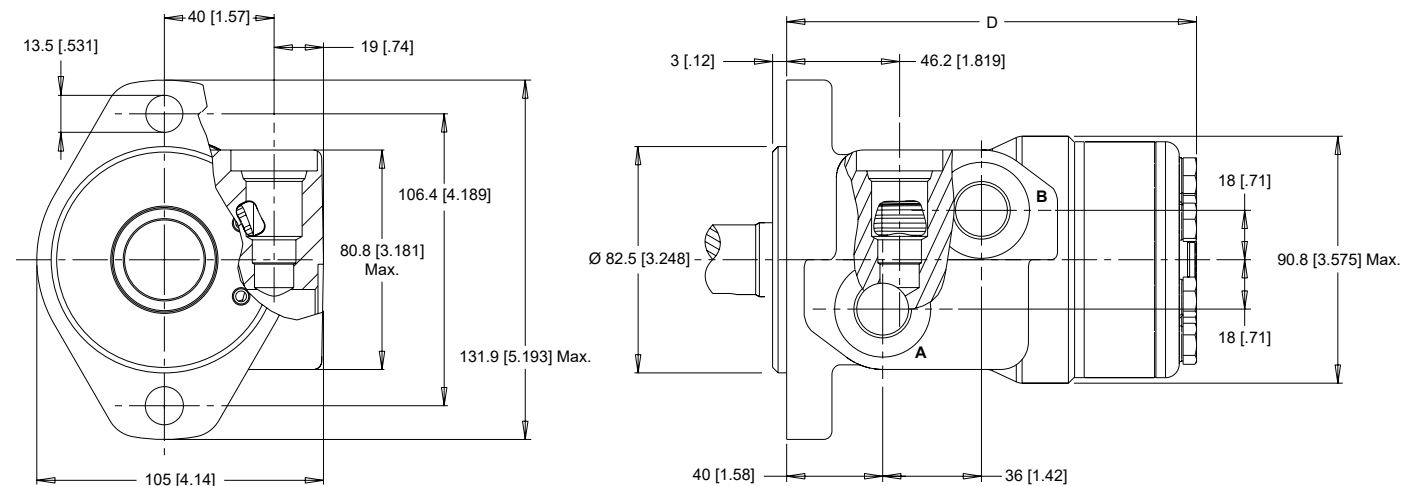
### 4-HOLE, SQUARE MOUNT, ALIGNED MANIFOLD PORTS

**F37** 1/2" Drilled



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

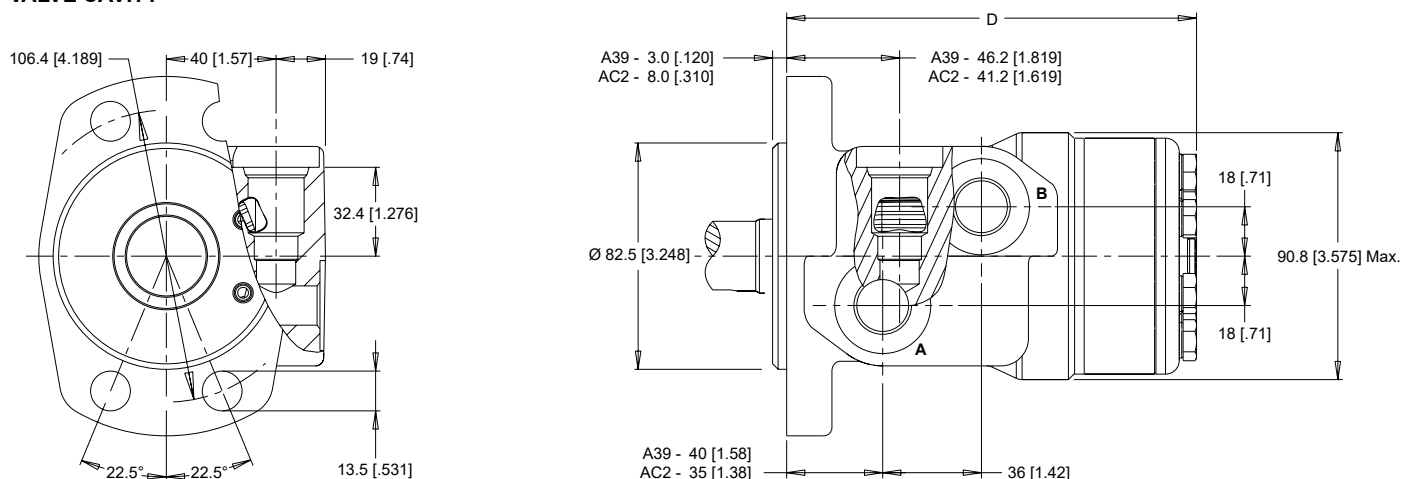
**A19** 7/8-14 UNF



### 4-HOLE, MAGNETO MOUNT, OFFSET PORTS, VALVE CAVITY

**A39** 7/8-14 UNF

**AC2** G 1/2 (TP)



► Dimension D is charted on page 40. ► (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].

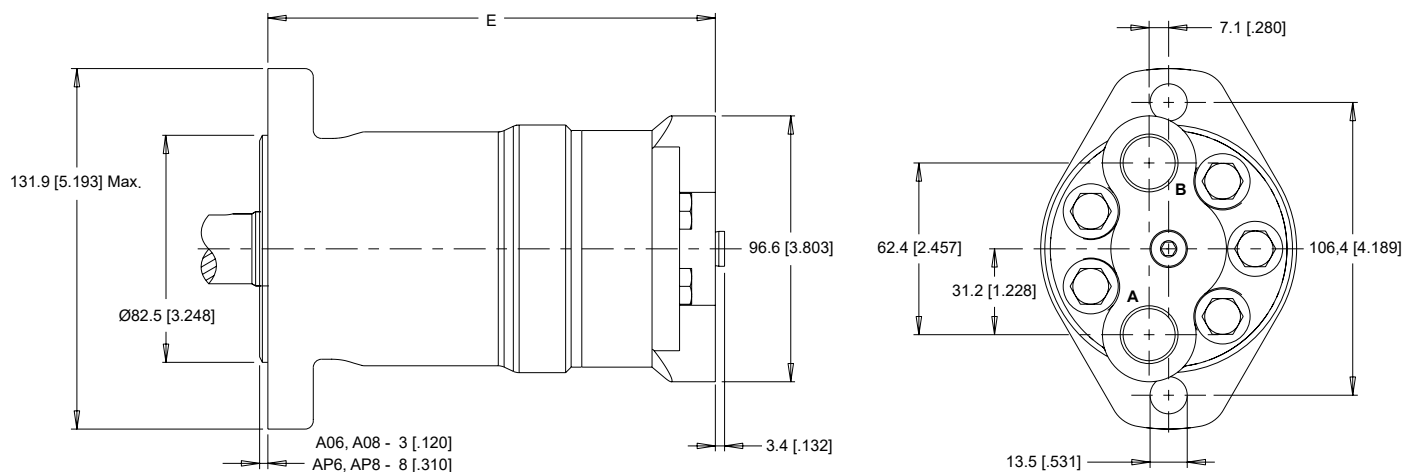
## 2-HOLE, SAE A MOUNT, ALIGNED END PORTS

**A06** 3/4-16 UNF

**A08** G 1/2

**AP6** 3/4-16 UNF (TP)

**AP8** G 1/2 (TP)



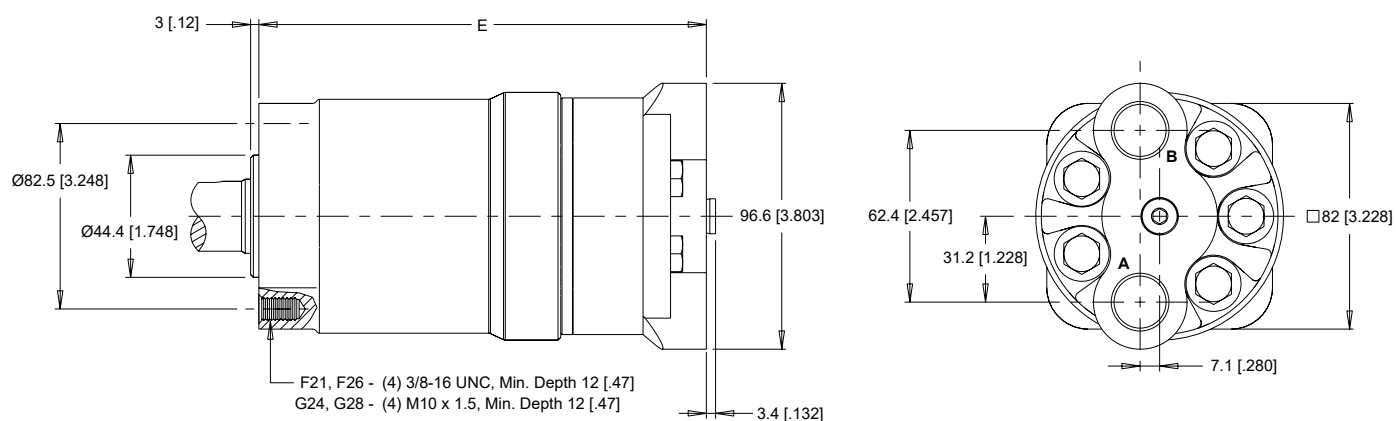
### 4-HOLE, SQUARE MOUNT, ALIGNED END PORTS

**F21** 7/8-14 UNF

**F26** 3/4-16 UNF

**G24** M22 x 1.5

**G28** G 1/2



► Dimension E is charted on page 40. ► (TP) - Taller Pilot Height. Refer to detailed drawing for dimensional differences.

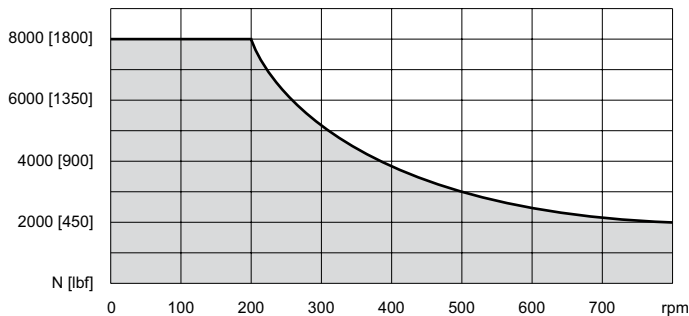
## WP (155/156 Series)

Light Duty Hydraulic Motor

### TECHNICAL INFORMATION

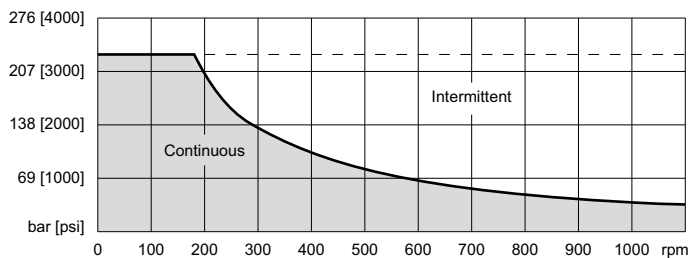
#### ALLOWABLE SHAFT LOAD / BEARING CURVE

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.

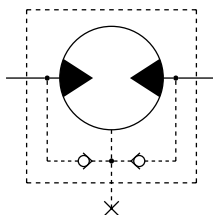


#### PERMISSIBLE SHAFT SEAL PRESSURE

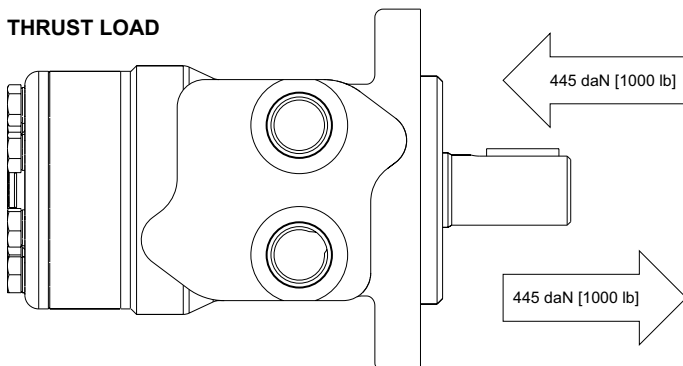
The curve below represents allowable seal pressure at various speeds. Operation in the gray area results in maintaining the rated life of the shaft seal. Actual shaft seal pressure depends on motor configuration.



- ▶ 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 D 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 35-38.

| D   | 3mm Pilot  | 8mm Pilot  | Weight     |
|-----|------------|------------|------------|
| #   | mm [in]    | mm [in]    | kg [lb]    |
| 025 | 133 [5.24] | 128 [5.04] | 6.3 [13.9] |
| 032 | 134 [5.28] | 129 [5.08] | 6.4 [14.1] |
| 040 | 136 [5.34] | 131 [5.16] | 6.5 [14.2] |
| 050 | 136 [5.34] | 131 [5.16] | 6.5 [14.2] |
| 060 | 137 [5.40] | 132 [5.20] | 6.5 [14.3] |
| 080 | 139 [5.49] | 134 [5.28] | 6.6 [14.5] |
| 100 | 142 [5.59] | 137 [5.39] | 6.7 [14.7] |
| 125 | 146 [5.74] | 141 [5.55] | 6.8 [14.9] |
| 160 | 150 [5.90] | 145 [5.71] | 6.9 [15.2] |
| 200 | 155 [6.10] | 150 [5.91] | 7.1 [15.6] |
| 250 | 162 [6.36] | 157 [6.18] | 7.3 [16.1] |
| 315 | 170 [6.69] | 165 [6.50] | 7.6 [16.7] |
| 400 | 181 [7.13] | 176 [6.93] | 7.9 [17.5] |

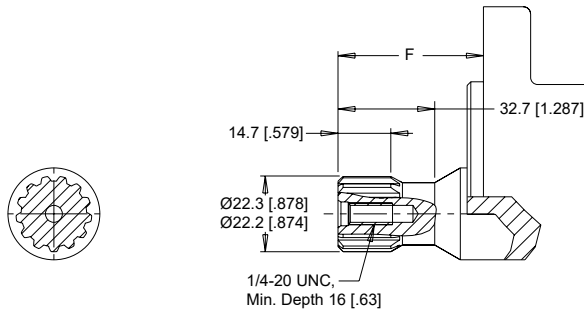
Dimension E is the overall motor length from the rear of the motor to the mounting flange surface and is referenced on detailed housing drawings listed on pages 39.

| E   | 3mm Pilot  | 8mm Pilot  | Weight     |
|-----|------------|------------|------------|
| #   | mm [in]    | mm [in]    | kg [lb]    |
| 025 | 144 [5.67] | 139 [5.47] | 5.9 [13.0] |
| 032 | 145 [5.71] | 140 [5.51] | 6.0 [13.2] |
| 040 | 146 [5.75] | 141 [5.55] | 6.1 [13.4] |
| 050 | 146 [5.75] | 141 [5.55] | 6.1 [13.4] |
| 060 | 148 [5.83] | 143 [5.63] | 6.1 [13.4] |
| 080 | 150 [5.91] | 145 [5.71] | 6.2 [13.6] |
| 100 | 153 [6.02] | 148 [5.83] | 6.3 [13.9] |
| 125 | 157 [6.18] | 152 [5.98] | 6.4 [14.1] |
| 160 | 161 [6.33] | 156 [6.14] | 6.5 [14.3] |
| 200 | 166 [6.54] | 161 [6.34] | 6.7 [14.7] |
| 250 | 173 [6.81] | 168 [6.61] | 6.9 [15.2] |
| 315 | 181 [7.13] | 176 [6.93] | 7.2 [15.8] |
| 400 | 192 [7.56] | 187 [7.36] | 7.5 [16.5] |

- ▶ The overall motor weights listed in each chart above were calculated using the heaviest of the housing options associated with that mounting flange to end of motor dimension. 155 & 156 series motor weights can vary  $\pm 0.5$  kg [1 lb] depending on model configurations such as housing, shaft, endcover, options etc.

## SHAFTS

### 01 7/8" 13 Tooth Spline



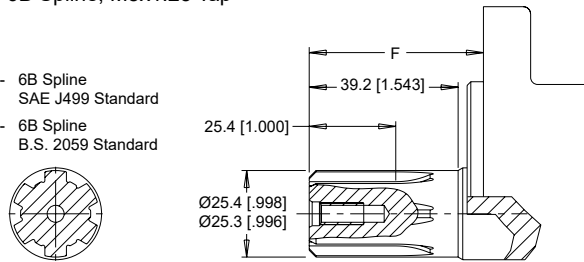
Max. Torque: 170 Nm [1500 lb-in]

### 02 1" 6B Spline, 1/4-20 Tap

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

### F3 1" 6B Spline, M8x1.25 Tap

02, 04 - 6B Spline  
SAE J499 Standard  
F3 - 6B Spline  
B.S. 2059 Standard

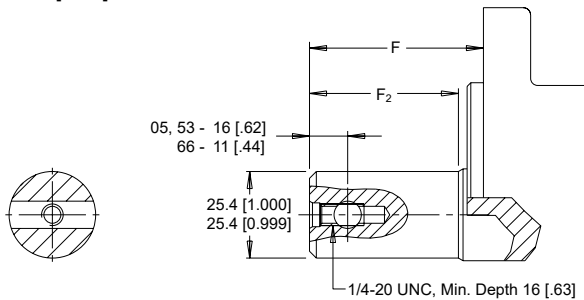


Max. Torque: 678 Nm [6000 lb-in]

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

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

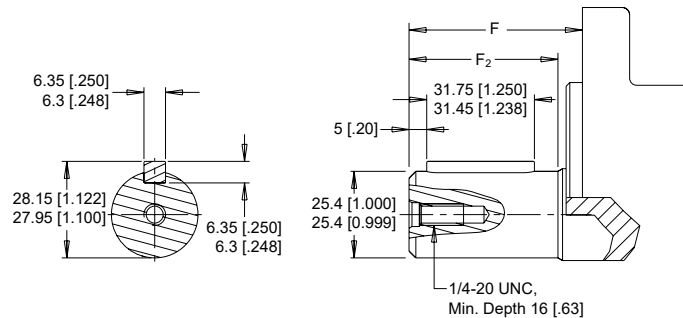
### 66 1" - 8.0 [.315] Pinhole



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

### 10 1" Straight

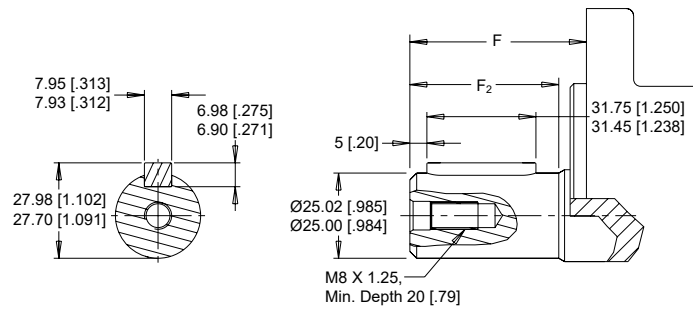
### 15 1" Straight Extended



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

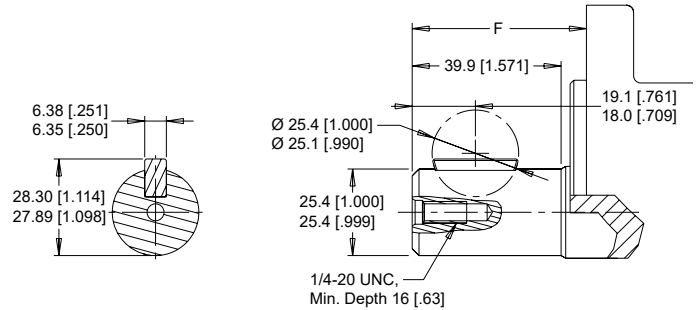
### 12 25mm Straight

### 16 25mm Straight Extended



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

### B1 1" Straight, Woodruff Key



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

## MOUNTING / SHAFT LENGTH CHART

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

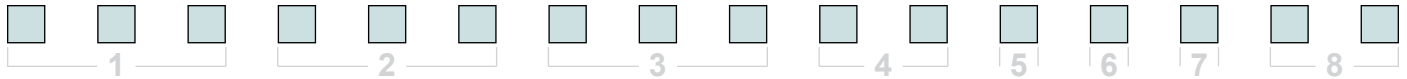
Additional shaft length information, if necessary, is noted as F<sub>2</sub> and does not increase or decrease the listed F dimensions in this chart. The overall shaft lengths are already factored into the overall distance from the mounting surface to the end of the shaft.

| F  | 3mm Pilot    | 8mm Pilot    | F <sub>2</sub> |
|----|--------------|--------------|----------------|
| #  | mm [in]      | mm [in]      | mm [in]        |
| 01 | 43.3 [1.705] | 48.3 [1.902] | N/A            |
| 02 | 45.3 [1.783] | 50.3 [1.980] | N/A            |
| 04 | 45.3 [1.783] | 50.3 [1.980] | N/A            |
| 05 | 45.3 [1.783] | 50.3 [1.980] | 39.2 [1.543]   |
| 10 | 45.3 [1.783] | 50.3 [1.980] | 39.2 [1.543]   |
| 12 | 50.3 [1.980] | 55.3 [2.177] | 44.2 [1.740]   |
| 15 | 62.1 [2.445] | 67.1 [2.642] | 56.0 [2.205]   |
| 16 | 62.6 [2.464] | 67.6 [2.661] | 56.5 [2.225]   |
| 53 | 45.3 [1.783] | 50.3 [1.980] | 39.2 [1.543]   |
| 66 | 50.3 [1.980] | 55.3 [2.177] | 44.2 [1.740]   |
| B1 | 45.3 [1.783] | 50.3 [1.980] | N/A            |

# WP (155/156 Series)

Light Duty Hydraulic Motor

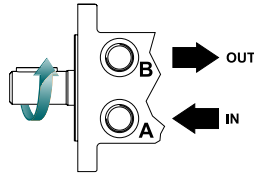
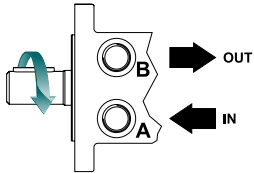
## ORDERING INFORMATION



### 1. CHOOSE SERIES DESIGNATION

**155** Standard Rotation

**156** Reverse Rotation



► The 155 & 156 series are bi-directional.

### 2. SELECT A DISPLACEMENT OPTION

**025** 25 cm<sup>3</sup>/rev [1.5 in<sup>3</sup>/rev]

**032** 32 cm<sup>3</sup>/rev [2.0 in<sup>3</sup>/rev]

**040** 40 cm<sup>3</sup>/rev [2.5 in<sup>3</sup>/rev]

**050** 50 cm<sup>3</sup>/rev [3.0 in<sup>3</sup>/rev]

**060** 59 cm<sup>3</sup>/rev [3.6 in<sup>3</sup>/rev]

**080** 78 cm<sup>3</sup>/rev [4.8 in<sup>3</sup>/rev]

**100** 96 cm<sup>3</sup>/rev [5.9 in<sup>3</sup>/rev]

**125** 125 cm<sup>3</sup>/rev [7.6 in<sup>3</sup>/rev]

**160** 154 cm<sup>3</sup>/rev [9.4 in<sup>3</sup>/rev]

**200** 190 cm<sup>3</sup>/rev [11.6 in<sup>3</sup>/rev]

**250** 240 cm<sup>3</sup>/rev [14.6 in<sup>3</sup>/rev]

**315** 303 cm<sup>3</sup>/rev [18.5 in<sup>3</sup>/rev]

**400** 388 cm<sup>3</sup>/rev [23.7 in<sup>3</sup>/rev]

### 3. SELECT A MOUNT & PORT OPTION

**A06** 2-Hole, SAE A Mount, Aligned End Ports, 3/4-16 UNF

**A08** 2-Hole, SAE A Mount, Aligned End Ports, G 1/2

**AP6** 2-Hole, SAE A Mount, Aligned End Ports, 3/4-16 UNF (TP)

**AP8** 2-Hole, SAE A Mount, Aligned End Ports, G 1/2 (TP)

**A10** 2-Hole, SAE A Mount, Aligned Ports, 1/2-14 NPT

**A11** 2-Hole, SAE A Mount, Aligned Ports, 7/8-14 UNF

**A12** 2-Hole, SAE A Mount, Offset Ports, G 1/2

**A13** 2-Hole, SAE A Mount, Offset Manifold Ports, G 1/2

**A17** 2-Hole, SAE A Mount, Aligned Manifold Ports, 1/2" Drilled

**A18** 2-Hole, SAE A Mount, Aligned Ports, G 1/2

**A19** 2-Hole, SAE A Mount, Offset Ports, Valve Cavity 7/8-14 UNF

**A30** 4-Hole, Magneto Mount, Aligned Ports, 1/2-14 NPT

**A31** 4-Hole, Magneto Mount, Aligned Ports, 7/8-14 UNF

**A32** 4-Hole, Magneto Mount, Offset Ports, G 1/2

**A37** 4-Hole, Magneto Mount, Aligned Manifold Ports, 1/2" Drilled

**A39** 4-Hole, Magneto Mount, Offset Ports, Valve Cavity 7/8-14 UNF

**A3D** 4-Hole, Magneto Mount, Offset Manifold Ports, 7/8-14 UNF

**A62** 2-Hole, SAE A Mount, Offset Ports, G 1/2 (TP)

**A63** 2-Hole, SAE A Mount, Offset Manifold Ports, G 1/2 (TP)

**A68** 2-Hole, SAE A Mount, Aligned Ports, G 1/2 (TP)

**A69** 2-Hole, SAE A Mount, Offset Ports, 7/8-14 UNF (TP)

**AC2** 4-Hole, Magneto Mount, Offset Ports, G 1/2 (TP)

**AC3** 4-Hole, Magneto Mount, Offset Manifold Ports, G 1/2 (TP)

**AC7** 4-Hole, Magneto Mount, Aligned Manifold Ports, 1/2" Drilled (TP)

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

### 3. SELECT A MOUNT & PORT OPTION

**AC8** 4-Hole, Magneto Mount, Aligned Ports, G 1/2 (TP)

**F21** 4-Hole, Square Mount, Aligned End Ports, 7/8-14 UNF

**F26** 4-Hole, Square Mount, Aligned End Ports, 3/4-16 UNF

**F30** 4-Hole, Square Mount, Aligned Ports, 1/2-14 NPT

**F31** 4-Hole, Square Mount, Aligned Ports, 7/8-14 UNF

**F37** 4-Hole, Square Mount, Aligned Manifold Ports, 1/2" Drilled

**F38** 4-Hole, Square Mount, Aligned Ports, G 1/2

**G17** 2-Hole, SAE A Mount, Aligned Manifold Ports, 1/2" Drilled

**G24** 4-Hole, Square Mount, Aligned End Ports, M22 x 1.5

**G28** 4-Hole, Square Mount, Aligned End Ports, G 1/2

### 4. SELECT A SHAFT OPTION

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

**02** 1" 6B Spline, 1/4-20 Tap

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

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

**10** 1" Straight

**12** 25mm Straight

**15** 1" Straight Extended

**16** 25mm Straight Extended

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

**66** 1" - 8.0 [.315] Pinhole

**B1** 1" Straight, Woodruff Key

**F3** 1" 6B Spline, M8x1.25 Tap

► 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

**A** Black

**B** Black, Unpainted Mounting Surface

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

**A** None

**B** Valve Cavity Only

**C** 69 bar [1000 psi] Relief

**D** 86 bar [1250 psi] Relief

**E** 104 bar [1500 psi] Relief

**F** 121 bar [1750 psi] Relief

**G** 138 bar [2000 psi] Relief

**J** 173 bar [2500 psi] Relief

► Valve cavity is only available on the A19, A39 & AC2 housings.

### 7. SELECT AN ADD-ON OPTION

**A** Standard

**B** Lock Nut

**C** Solid Hex Nut

**W** Speed Sensor, Dual, 4-Pin Male Weatherpack Connector

**X** Speed Sensor, Dual, 4-Pin M12 Male Connector

**Y** Speed Sensor, Single, 3-Pin Male Weatherpack Connector

**Z** Speed Sensor, Single, 4-Pin M12 Male Connector

### 8. SELECT A MISCELLANEOUS OPTION

**AA** None

**AC** Freeturning Rotor

**BE** Slinger Seal

**DS** Groove In Mounting Flange

**FB** No Check Valves Installed



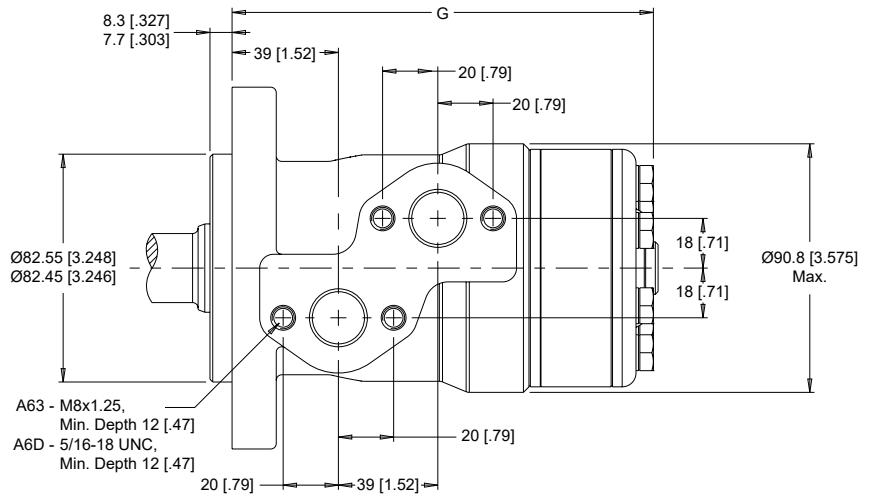
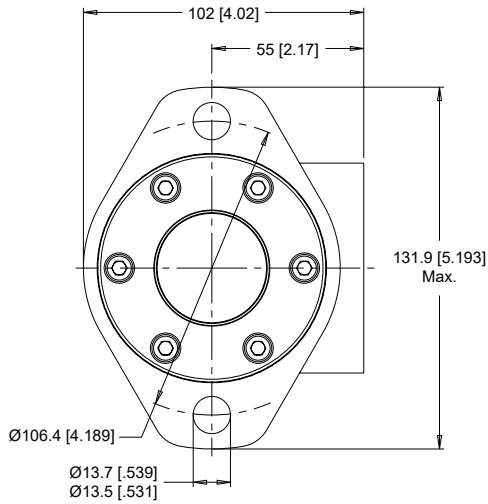
## HOUSINGS

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

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

**A63** G 1/2

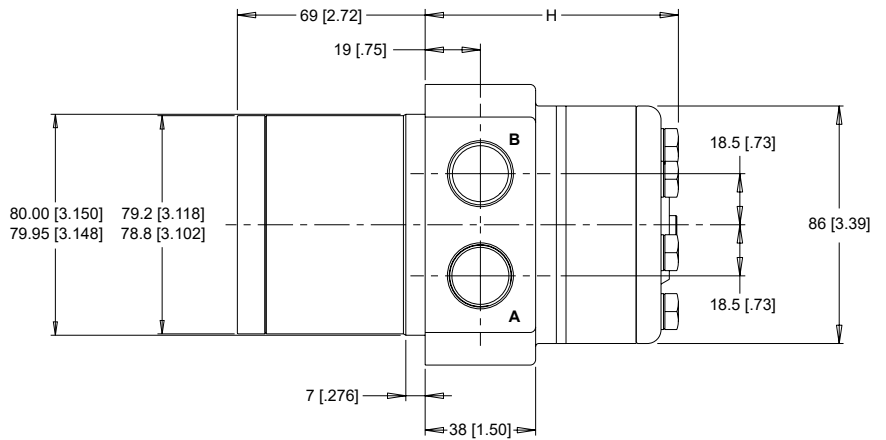
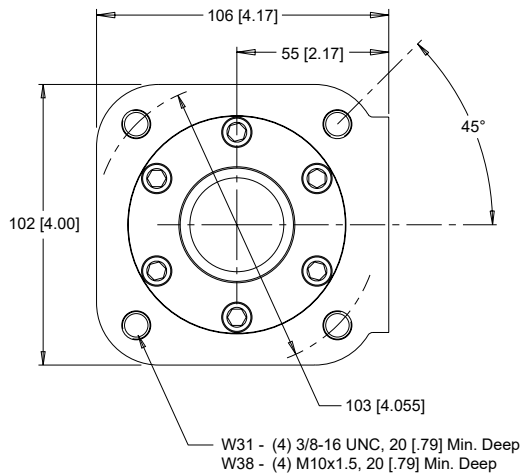
**A6D** 7/8-14 UNF



### 4-HOLE, WHEEL MOUNT, ALIGNED PORTS

**W31** 7/8-14 UNF

**W38** G 1/2



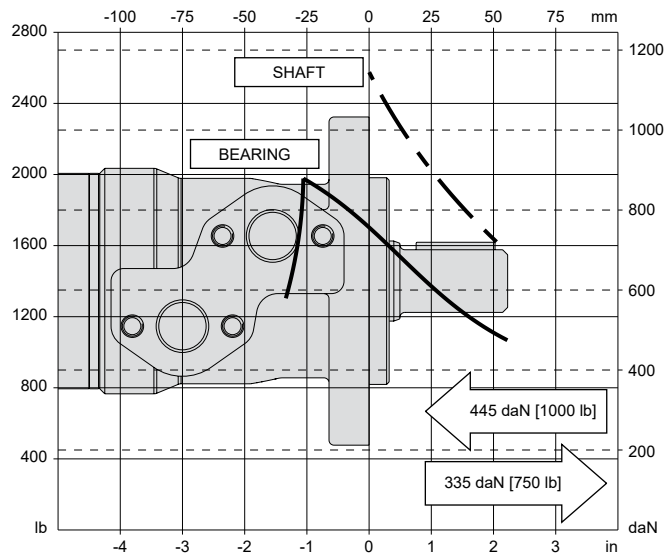
► Dimensions G & H are charted on page 44.

## TECHNICAL INFORMATION

### ALLOWABLE SHAFT LOAD / BEARING CURVE

The bearing curve represents allowable bearing loads based on ISO 281 bearing capacity for an  $L_{10}$  life of 2,000 hours at 100 rpm. Radial loads for speeds other than 100 rpm may be calculated using the multiplication factor table on page 7.

#### SAE A MOUNT

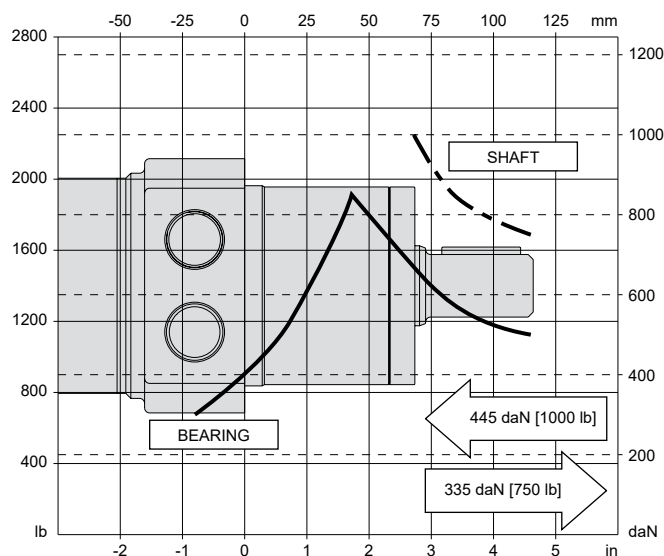


#### LENGTH & WEIGHT CHART

Dimension G is the overall motor length from the rear of the motor to the mounting flange surface.

| G   | Length     | Weight     |
|-----|------------|------------|
| #   | mm [in]    | kg [lb]    |
| 025 | 133 [5.24] | 6.0 [13.3] |
| 032 | 134 [5.28] | 6.1 [13.4] |
| 040 | 136 [5.33] | 6.1 [13.5] |
| 050 | 136 [5.33] | 6.1 [13.5] |
| 060 | 137 [5.39] | 6.2 [13.6] |
| 080 | 139 [5.48] | 6.2 [13.6] |
| 100 | 142 [5.59] | 6.3 [13.9] |
| 125 | 146 [5.74] | 6.4 [14.2] |
| 160 | 150 [5.89] | 6.6 [14.5] |
| 200 | 155 [6.09] | 6.7 [14.9] |
| 250 | 161 [6.35] | 7.0 [15.3] |
| 315 | 170 [6.69] | 7.2 [15.9] |
| 400 | 181 [7.13] | 7.6 [16.8] |

#### WHEEL MOUNT



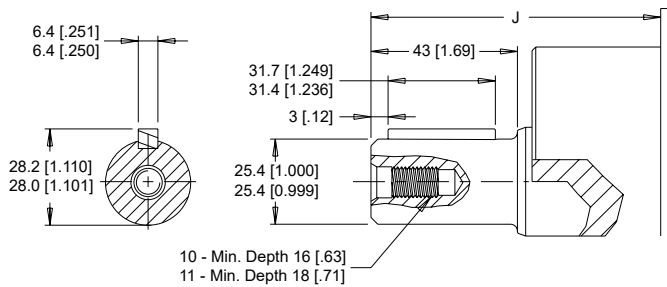
#### LENGTH & WEIGHT CHART

Dimension H is the overall motor length from the rear of the motor to the mounting flange surface.

| H   | Length     | Weight     |
|-----|------------|------------|
| #   | mm [in]    | kg [lb]    |
| 025 | 72 [2.83]  | 6.4 [14.1] |
| 032 | 73 [2.87]  | 6.5 [14.4] |
| 040 | 75 [2.95]  | 6.6 [14.5] |
| 050 | 75 [2.95]  | 6.6 [14.5] |
| 060 | 76 [2.99]  | 6.7 [14.8] |
| 080 | 78 [3.07]  | 6.8 [15.0] |
| 100 | 81 [3.19]  | 6.9 [15.2] |
| 125 | 85 [3.35]  | 7.0 [15.5] |
| 160 | 89 [3.50]  | 7.1 [15.6] |
| 200 | 94 [3.70]  | 7.2 [15.9] |
| 250 | 100 [3.94] | 7.4 [16.4] |
| 315 | 109 [4.29] | 7.7 [17.0] |
| 400 | 120 [4.72] | 8.1 [17.8] |

## SHAFTS

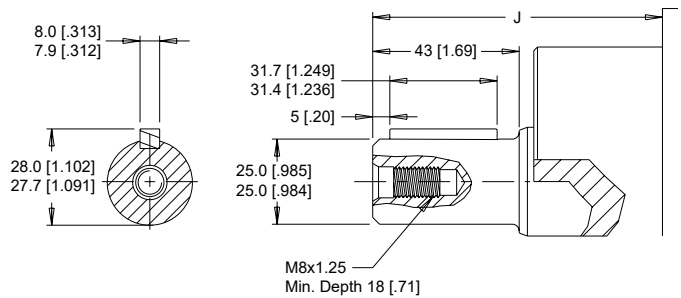
### 10 1" Straight, 1/4-20 Tap



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

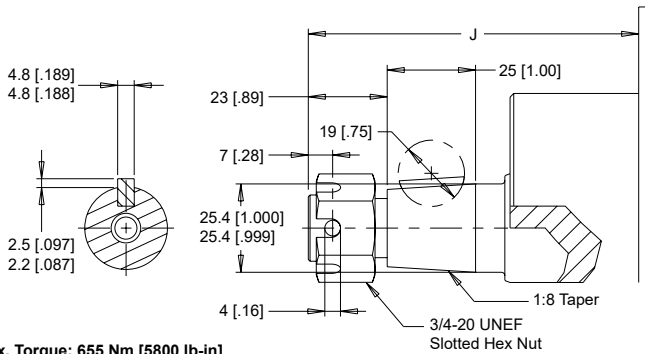
### 11 1" Straight, M8x1.25 Tap

### 12 25mm Straight



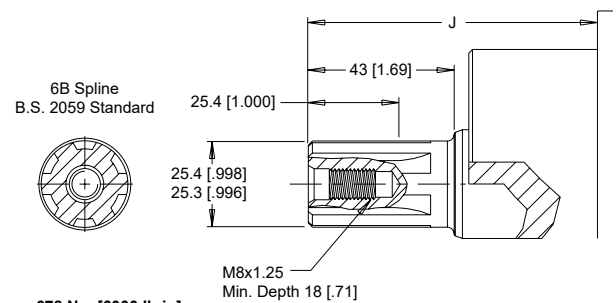
Max. Torque: 655 Nm [5800 lb-in]

### 13 1" Tapered



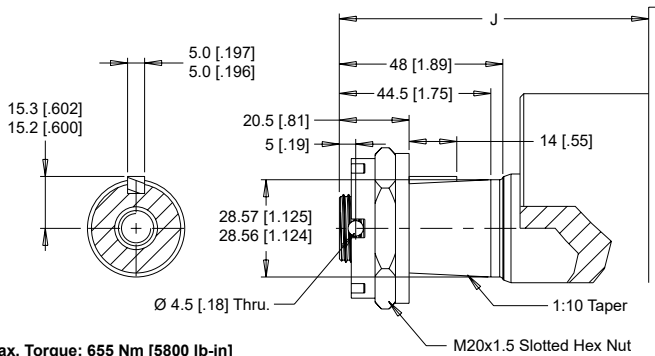
Max. Torque: 655 Nm [5800 lb-in]

### F3 1" 6B Spline



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

### N9 28.5mm Tapered



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

## MOUNTING / SHAFT LENGTH CHART

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

| J  | SAE A Mounts | Wheel Mounts |
|----|--------------|--------------|
| #  | mm [in]      | mm [in]      |
| 10 | 55 [2.18]    | 116 [4.57]   |
| 11 | 55 [2.18]    | 116 [4.57]   |
| 12 | 55 [2.18]    | 116 [4.57]   |
| 13 | 66 [2.60]    | 127 [5.00]   |
| F3 | 55 [2.18]    | 116 [4.57]   |
| N9 | 58 [2.29]    | 119 [4.69]   |

# WP (157/158 Series)

Light Duty Hydraulic Motor

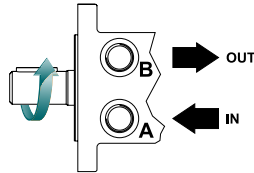
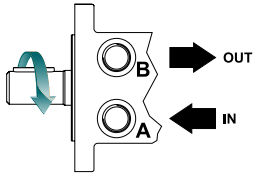
## ORDERING INFORMATION

|   |  |   |  |   |  |   |  |   |  |   |  |   |  |   |  |
|---|--|---|--|---|--|---|--|---|--|---|--|---|--|---|--|
|   |  |   |  |   |  |   |  |   |  |   |  |   |  |   |  |
| 1 |  | 2 |  | 3 |  | 4 |  | 5 |  | 6 |  | 7 |  | 8 |  |

### 1. CHOOSE SERIES DESIGNATION

**157** Clockwise Rotation

**158** Counterclockwise Rotation



► The 157 & 158 series are bi-directional. Reversing the inlet hose will reverse shaft rotation.

### 2. SELECT A DISPLACEMENT OPTION

**025** 25 cm<sup>3</sup>/rev [1.5 in<sup>3</sup>/rev]

**032** 32 cm<sup>3</sup>/rev [2.0 in<sup>3</sup>/rev]

**040** 40 cm<sup>3</sup>/rev [2.5 in<sup>3</sup>/rev]

**050** 50 cm<sup>3</sup>/rev [3.0 in<sup>3</sup>/rev]

**060** 59 cm<sup>3</sup>/rev [3.6 in<sup>3</sup>/rev]

**080** 78 cm<sup>3</sup>/rev [4.8 in<sup>3</sup>/rev]

**100** 96 cm<sup>3</sup>/rev [5.9 in<sup>3</sup>/rev]

**125** 125 cm<sup>3</sup>/rev [7.6 in<sup>3</sup>/rev]

**160** 154 cm<sup>3</sup>/rev [9.4 in<sup>3</sup>/rev]

**200** 190 cm<sup>3</sup>/rev [11.6 in<sup>3</sup>/rev]

**250** 240 cm<sup>3</sup>/rev [14.6 in<sup>3</sup>/rev]

**315** 303 cm<sup>3</sup>/rev [18.5 in<sup>3</sup>/rev]

**400** 388 cm<sup>3</sup>/rev [23.7 in<sup>3</sup>/rev]

### 3. SELECT A MOUNT & PORT OPTION

**A63** 2-Hole, SAE A Mount, Offset Manifold Ports, G 1/2 (TP)

**A6D** 2-Hole, SAE A Mount, Offset Manifold Ports, 7/8-14

**W31** UNF 4-Hole, Wheel Mount, Aligned Ports, 7/8-14 UNF

**W38** 4-Hole, Wheel Mount, Aligned Ports, G 1/2

### 4. SELECT A SHAFT OPTION

**10** 1" Straight, 1/4-20 Tap

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

**12** 25mm Straight

**13** 1" Tapered

**F3** 1" 6B Spline

**N9** 28.5mm Tapered

### 5. SELECT A PAINT OPTION

**A** Black

**B** Black, Unpainted Mounting Surface

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

**A** None

### 7. SELECT AN ADD-ON OPTION

**A** Standard

### 8. SELECT A MISCELLANEOUS OPTION

**AA** None

**AC** Freeturning Rotor