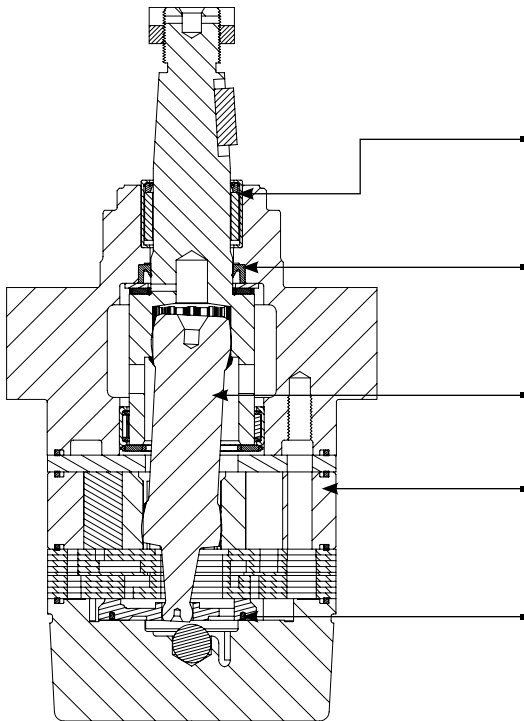


WG

SERIES HYDRAULIC MOTORS

The White Drive Products tradition of providing motors that excel in demanding applications continues with the WG series. WG motors provide an exceptionally solid platform for any medium-duty application where sideload may present a concern. The WG incorporates our Roller Stator® design which reduces friction and extends motor life. With displacements ranging from 41 - 404 cc [2.5 - 24.4 in³/rev.] and a choice of mounting, shaft, and port options, this motor is made to satisfy a variety of applications. The WG is a perfect fit when you require improved performance and long motor life at an affordable price. Applications include, but are not limited to, light to medium duty wheel drives, feed rollers, augers, brush drives, and conveyors.



KEY FEATURES

Needle Roller Bearing is in optimum location to allow load to be placed as close to the center line of bearing as possible.

High Pressure Buna® Shaft Seal offers superior seal life and performance and eliminates the need for a case drain.

Heavy-Duty Drive Link receives full flow lubrication to provide long life.

Roller Stator® Motor Design increases efficiency and life by using roller contact versus solid, sliding contact design.

Rubber Energized Steel Face Seal does not extrude or melt under high pressure or high temperature.

SPECIFICATIONS

Intermittent Ratings - 10% of Operation Peak Ratings - 1% of Operation

| CODE | Displacement cc [in ³ /rev] | Max. Speed rpm | | Max. Flow lpm [gpm] | | Max. Torque Nm [lb-in] | | Max. Pressure bar [psi] | | |
|------|---|-------------------|--------|------------------------|---------|---------------------------|------------|----------------------------|------------|------------|
| | | cont. | inter. | cont. | inter. | cont. | inter. | cont. | inter. | peak |
| 040 | 41 [2.5] | 830 | 1020 | 34 [9] | 42 [11] | 71 [630] | 100 [870] | 138 [2000] | 190 [2750] | 207 [3000] |
| 045 | 44 [2.7] | 770 | 940 | 34 [9] | 42 [11] | 78 [685] | 108 [955] | 138 [2000] | 190 [2750] | 207 [3000] |
| 060 | 60 [3.6] | 760 | 950 | 45 [12] | 57 [15] | 107 [950] | 150 [1320] | 138 [2000] | 190 [2750] | 207 [3000] |
| 070 | 70 [4.3] | 650 | 810 | 45 [12] | 57 [15] | 127 [1120] | 176 [1560] | 138 [2000] | 190 [2750] | 207 [3000] |
| 090 | 88 [5.4] | 520 | 650 | 45 [12] | 57 [15] | 162 [1430] | 224 [1985] | 138 [2000] | 190 [2750] | 207 [3000] |
| 100 | 100 [6.1] | 450 | 570 | 45 [12] | 57 [15] | 185 [1640] | 257 [2275] | 138 [2000] | 190 [2750] | 207 [3000] |
| 130 | 129 [7.9] | 350 | 440 | 45 [12] | 57 [15] | 241 [2135] | 334 [2960] | 138 [2000] | 190 [2750] | 207 [3000] |
| 160 | 161 [9.8] | 280 | 350 | 45 [12] | 57 [15] | 304 [2690] | 421 [3730] | 138 [2000] | 190 [2750] | 207 [3000] |
| 200 | 200 [12.2] | 220 | 280 | 45 [12] | 57 [15] | 379 [3350] | 525 [4650] | 138 [2000] | 190 [2750] | 207 [3000] |
| 230 | 231 [14.1] | 240 | 330 | 57 [15] | 76 [20] | 380 [3380] | 529 [4680] | 121 [1750] | 165 [2400] | 200 [2900] |
| 320 | 322 [19.7] | 175 | 235 | 57 [15] | 76 [20] | 458 [4050] | 600 [5300] | 103 [1500] | 134 [1950] | 169 [2450] |
| 400 | 404 [24.4] | 140 | 185 | 57 [15] | 76 [20] | 548 [4850] | 758 [6710] | 100 [1450] | 135 [1960] | 170 [2460] |



040

| Pressure - bars [psi] | | | | | Max. Cont. | Max. Inter. |
|-----------------------|--------|--------|--------|--------|------------|-------------|
| 35 | 69 | 104 | 138 | 190 | | |
| [500] | [1000] | [1500] | [2000] | [2750] | | |

41 cc [2.5 in³/rev.] Intermittent Ratings - 10% of Operation

| Flow - lpm [gpm] | 13 | 29 | 45 | | | Theoretical rpm |
|------------------|-------------|-------------|------------|------------|------------|-----------------|
| 2 [0.5] | [117] | [259] | [401] | | | 47 |
| | 37 | 25 | 4 | | | |
| 4 [1] | 14 | 31 | 48 | 65 | | 93 |
| | [126] | [276] | [427] | [577] | | |
| | 85 | 72 | 51 | 21 | | |
| 8 [2] | 15 | 33 | 51 | 69 | 96 | 186 |
| | [134] | [293] | [453] | [612] | [852] | |
| | 179 | 166 | 144 | 113 | 49 | |
| 11 [3] | 15 | 34 | 52 | 71 | 98 | 279 |
| | [136] | [299] | [462] | [625] | [869] | |
| | 273 | 260 | 237 | 205 | 138 | |
| 15 [4] | 15 | 34 | 52 | 71 | 99 | 372 |
| | [136] | [300] | [464] | [628] | [874] | |
| | 368 | 354 | 330 | 296 | 227 | |
| 19 [5] | 15 | 34 | 52 | 71 | 98 | 464 |
| | [134] | [298] | [462] | [626] | [872] | |
| | 462 | 448 | 423 | 388 | 316 | |
| 27 [7] | 15 | 33 | 51 | 70 | 97 | 650 |
| | [129] | [291] | [454] | [617] | [861] | |
| | 650 | 636 | 609 | 572 | 493 | |
| 34 [9] | 14 | 32 | 50 | 69 | 96 | 835 |
| | [122] | [283] | [445] | [607] | [849] | |
| | 835 | 824 | 796 | 755 | 671 | |
| 42 [11] | 13 | 31 | 49 | 68 | | 1021 |
| | [115] | [276] | [437] | [599] | | |
| | 1021 | 1012 | 982 | 939 | | |

Torque - Nm [lb-in], Speed rpm

| 22 | 45 | 67 | 90 | 123 |
|-------|-------|-------|-------|--------|
| [198] | [396] | [595] | [793] | [1090] |

Theoretical Torque - Nm [lb-in]

Overall Efficiency - 70 - 100% 40 - 69% 0 - 39%

060

| Pressure - bars [psi] | | | | | Max. Cont. | Max. Inter. |
|-----------------------|--------|--------|--------|--------|------------|-------------|
| 35 | 69 | 104 | 138 | 190 | | |
| [500] | [1000] | [1500] | [2000] | [2750] | | |

60 cc [3.6 in³/rev.] Intermittent Ratings - 10% of Operation

| Flow - lpm [gpm] | 22 | 45 | 69 | | | Theoretical rpm |
|------------------|------------|------------|------------|------------|------------|-----------------|
| 2 [0.5] | [191] | [400] | [608] | | | 32 |
| | 26 | 17 | 3 | | | |
| 4 [1] | 23 | 48 | 73 | 98 | | 64 |
| | [203] | [425] | [648] | [870] | | |
| | 58 | 49 | 35 | 14 | | |
| 8 [2] | 24 | 51 | 78 | 104 | 145 | 127 |
| | [213] | [450] | [687] | [924] | [1280] | |
| | 122 | 113 | 98 | 77 | 34 | |
| 11 [3] | 24 | 52 | 79 | 107 | 148 | 191 |
| | [214] | [458] | [702] | [945] | [1310] | |
| | 187 | 178 | 162 | 140 | 94 | |
| 15 [4] | 24 | 52 | 80 | 107 | 149 | 254 |
| | [211] | [458] | [704] | [950] | [1320] | |
| | 251 | 242 | 226 | 203 | 155 | |
| 19 [5] | 23 | 51 | 79 | 107 | 149 | 318 |
| | [205] | [453] | [700] | [948] | [1319] | |
| | 316 | 306 | 289 | 265 | 216 | |
| 27 [7] | 21 | 49 | 77 | 105 | 147 | 445 |
| | [190] | [437] | [685] | [932] | [1304] | |
| | 445 | 435 | 417 | 391 | 337 | |
| 34 [9] | 19 | 47 | 75 | 103 | 145 | 572 |
| | [170] | [417] | [664] | [912] | [1282] | |
| | 572 | 563 | 544 | 517 | 459 | |
| 45 [12] | 15 | 43 | 71 | 99 | 141 | 762 |
| | [136] | [384] | [632] | [879] | [1251] | |
| | 762 | 756 | 735 | 705 | 641 | |
| 57 [15] | 11 | 39 | 68 | 96 | | 952 |
| | [98] | [349] | [599] | [850] | | |
| | 952 | 949 | 926 | 893 | | |

Torque - Nm [lb-in], Speed rpm

| 33 | 65 | 98 | 131 | 180 |
|-------|-------|-------|--------|--------|
| [952] | [580] | [869] | [1159] | [1594] |

Theoretical Torque - Nm [lb-in]

Overall Efficiency - 70 - 100% 40 - 69% 0 - 39%

045

| Pressure - bars [psi] | | | | | Max. Cont. | Max. Inter. |
|-----------------------|--------|--------|--------|--------|------------|-------------|
| 35 | 69 | 104 | 138 | 190 | | |
| [500] | [1000] | [1500] | [2000] | [2750] | | |

44 cc [2.7 in³/rev.] Intermittent Ratings - 10% of Operation

| Flow - lpm [gpm] | 15 | 32 | 50 | | | Theoretical rpm |
|------------------|------------|------------|------------|------------|------------|-----------------|
| 2 [0.5] | [131] | [285] | [438] | | | 43 |
| | 34 | 23 | 4 | | | |
| 4 [1] | 16 | 34 | 53 | 71 | | 86 |
| | [140] | [303] | [467] | [631] | | |
| | 78 | 66 | 47 | 19 | | |
| 8 [2] | 17 | 36 | 56 | 76 | 105 | 172 |
| | [148] | [322] | [496] | [669] | [930] | |
| | 165 | 153 | 133 | 104 | 45 | |
| 11 [3] | 17 | 37 | 57 | 77 | 107 | 257 |
| | [151] | [328] | [506] | [683] | [950] | |
| | 252 | 240 | 219 | 189 | 127 | |
| 15 [4] | 17 | 37 | 57 | 78 | 108 | 343 |
| | [150] | [329] | [508] | [687] | [955] | |
| | 339 | 326 | 304 | 273 | 209 | |
| 19 [5] | 17 | 37 | 57 | 77 | 108 | 428 |
| | [147] | [326] | [505] | [685] | [953] | |
| | 426 | 413 | 390 | 358 | 291 | |
| 27 [7] | 16 | 36 | 56 | 76 | 106 | 599 |
| | [140] | [318] | [496] | [674] | [942] | |
| | 599 | 586 | 562 | 527 | 455 | |
| 34 [9] | 15 | 35 | 55 | 75 | 105 | 770 |
| | [131] | [308] | [485] | [662] | [928] | |
| | 770 | 760 | 734 | 696 | 619 | |
| 42 [11] | 14 | 34 | 54 | 74 | | 942 |
| | [121] | [298] | [475] | [652] | | |
| | 942 | 933 | 906 | 866 | | |

Torque - Nm [lb-in], Speed rpm

| 24 | 49 | 73 | 97 | 134 |
|-------|-------|-------|-------|--------|
| [215] | [430] | [645] | [860] | [1182] |

Theoretical Torque - Nm [lb-in]

Overall Efficiency - 70 - 100% 40 - 69% 0 - 39%

070

| Pressure - bars [psi] | | | | | Max. Cont. | Max. Inter. |
|-----------------------|--------|--------|--------|--------|------------|-------------|
| 35 | 69 | 104 | 138 | 190 | | |
| [500] | [1000] | [1500] | [2000] | [2750] | | |

70 cc [4.3 in³/rev.] Intermittent Ratings - 10% of Operation

| Flow - lpm [gpm] | 26 | 54 | 81 | | | Theoretical rpm |
|------------------|------------|------------|------------|------------|------------|-----------------|
| 2 [0.5] | [231] | [474] | [718] | | | 28 |
| | 22 | 15 | 2 | | | |
| 4 [1] | 28 | 57 | 86 | 116 | | 55 |
| | [244] | [504] | [765] | [1025] | | |
| | 50 | 42 | 30 | 12 | | |
| 8 [2] | 29 | 60 | 92 | 123 | 170 | 109 |
| | [255] | [534] | [812] | [1090] | [1507] | |
| | 105 | 97 | 84 | 66 | 29 | |
| 11 [3] | 29 | 61 | 94 | 126 | 175 | 164 |
| | [256] | [542] | [829] | [1115] | [1544] | |
| | 160 | 152 | 139 | 120 | 81 | |
| 15 [4] | 28 | 61 | 94 | 127 | 176 | 218 |
| | [251] | [541] | [831] | [1121] | [1557] | |
| | 215 | 207 | 193 | 174 | 133 | |
| 19 [5] | 27 | 60 | 93 | 126 | 176 | 272 |
| | [243] | [535] | [827] | [1119] | [1556] | |
| | 271 | 262 | 248 | 227 | 185 | |
| 27 [7] | 25 | 58 | 91 | 124 | 174 | 381 |
| | [222] | [514] | [807] | [1100] | [1539] | |
| | 381 | 372 | 357 | 335 | 289 | |
| 34 [9] | 22 | 55 | 88 | 121 | 171 | 490 |
| | [196] | [488] | [781] | [1073] | [1512] | |
| | 490 | 483 | 466 | 442 | 393 | |
| 45 [12] | 17 | 50 | 83 | 116 | 166 | 653 |
| | [149] | [443] | [736] | [1030] | [1470] | |
| | 653 | 648 | 630 | 604 | 549 | |
| 57 [15] | 11 | 44 | 78 | 111 | | 816 |
| | [96] | [393] | [690] | [986] | | |
| | 816 | 813 | 793 | 765 | | |

Torque - Nm [lb-in], Speed rpm

| 38 | 76 | 115 | 153 | 210 |
|-------|-------|--------|--------|--------|
| [338] | [677] | [1015] | [1354] | [1861] |

Theoretical Torque - Nm [lb-in]

Overall Efficiency - 70 - 100% 40 - 69% 0 - 39%



| | | Pressure - bars [psi] | | | | Max. Cont. | Max. Inter. | | |
|---|---------|-----------------------|-----------|------------|------------|------------|-------------|-----------------|--|
| 090 | | 35 [500] | 69 [1000] | 104 [1500] | 138 [2000] | 190 [2750] | | | |
| 88 cc [5.4 in ³ /rev.] Intermittent Ratings - 10% of Operation | | | | | | | | | |
| Flow - lpm [gpm] | 2 [0.5] | 34 [301] | 69 [609] | 104 [917] | | | 22 | Theoretical rpm | Tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]. |
| | 4 [1] | 36 [318] | 73 [647] | 110 [976] | 147 [1305] | | 44 | | |
| | 8 [2] | 37 [331] | 77 [684] | 117 [1036] | 157 [1388] | 217 [1917] | 87 | | |
| | 11 [3] | 37 [331] | 78 [694] | 120 [1058] | 161 [1421] | 222 [1966] | 130 | | |
| | 15 [4] | 37 [323] | 78 [692] | 120 [1061] | 162 [1430] | 224 [1984] | 173 | | |
| | 19 [5] | 35 [312] | 77 [683] | 119 [1055] | 161 [1427] | 224 [1984] | 216 | | |
| | 27 [7] | 32 [280] | 74 [654] | 116 [1028] | 158 [1402] | 222 [1962] | 303 | | |
| | 34 [9] | 27 [242] | 70 [616] | 112 [990] | 154 [1365] | 218 [1926] | 389 | | |
| | 45 [12] | 20 [173] | 62 [549] | 105 [925] | 147 [1301] | 211 [1864] | 519 | | |
| | 57 [15] | 11 [94] | 53 [473] | 96 [853] | 139 [1232] | 199 [608] | 648 | | |
| Torque - Nm [lb-in], Speed rpm | | | | | | | | | |
| | | 48 [426] | 96 [852] | 144 [1278] | 193 [1704] | 265 [2343] | | | |
| Theoretical Torque - Nm [lb-in] | | | | | | | | | |

Overall Efficiency - 70 - 100% 40 - 69% 0 - 39%

| | | Pressure - bars [psi] | | | | Max. Cont. | Max. Inter. | | |
|--|---------|-----------------------|------------|------------|------------|------------|-------------|-----------------|--|
| 130 | | 35 [500] | 69 [1000] | 104 [1500] | 138 [2000] | 190 [2750] | | | |
| 129 cc [7.9 in ³ /rev.] Intermittent Ratings - 10% of Operation | | | | | | | | | |
| Flow - lpm [gpm] | 2 [0.5] | 52 [463] | 104 [917] | 155 [1370] | | | 15 | Theoretical rpm | Tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]. |
| | 4 [1] | 55 [487] | 110 [972] | 165 [1458] | 220 [1943] | | 30 | | |
| | 8 [2] | 57 [505] | 116 [1026] | 175 [1548] | 234 [2069] | 322 [2851] | 59 | | |
| | 11 [3] | 57 [502] | 118 [1041] | 179 [1580] | 240 [2120] | 331 [2929] | 89 | | |
| | 15 [4] | 55 [488] | 117 [1037] | 179 [1586] | 241 [2134] | 334 [2958] | 118 | | |
| | 19 [5] | 53 [467] | 115 [1021] | 178 [1576] | 241 [2130] | 335 [2961] | 147 | | |
| | 27 [7] | 47 [413] | 110 [972] | 173 [1531] | 236 [2091] | 331 [2929] | 206 | | |
| | 34 [9] | 39 [347] | 103 [908] | 166 [1469] | 229 [2030] | 325 [2872] | 265 | | |
| | 45 [12] | 26 [228] | 89 [792] | 153 [1355] | 217 [1919] | 312 [2764] | 353 | | |
| | 57 [15] | 10 [89] | 74 [657] | 138 [1224] | 202 [1792] | 297 [414] | 441 | | |
| Torque - Nm [lb-in], Speed rpm | | | | | | | | | |
| | | 71 [626] | 141 [1252] | 212 [1877] | 283 [2503] | 389 [3442] | | | |
| Theoretical Torque - Nm [lb-in] | | | | | | | | | |

Overall Efficiency - 70 - 100% 40 - 69% 0 - 39%

| | | Pressure - bars [psi] | | | | Max. Cont. | Max. Inter. | | |
|--|---------|-----------------------|-----------|------------|------------|------------|-------------|-----------------|--|
| 100 | | 35 [500] | 69 [1000] | 104 [1500] | 138 [2000] | 190 [2750] | | | |
| 100 cc [6.1 in ³ /rev.] Intermittent Ratings - 10% of Operation | | | | | | | | | |
| Flow - lpm [gpm] | 2 [0.5] | 40 [350] | 79 [701] | 119 [1052] | | | 19 | Theoretical rpm | Tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]. |
| | 4 [1] | 42 [369] | 84 [744] | 127 [1120] | 169 [1496] | | 38 | | |
| | 8 [2] | 43 [383] | 89 [786] | 134 [1189] | 180 [1592] | 248 [2196] | 76 | | |
| | 11 [3] | 43 [382] | 90 [798] | 137 [1214] | 184 [1630] | 255 [2254] | 114 | | |
| | 15 [4] | 42 [372] | 90 [795] | 138 [1218] | 185 [1641] | 257 [2275] | 152 | | |
| | 19 [5] | 40 [358] | 89 [784] | 137 [1211] | 185 [1637] | 257 [2276] | 190 | | |
| | 27 [7] | 36 [320] | 85 [749] | 133 [1178] | 182 [1607] | 254 [2251] | 266 | | |
| | 34 [9] | 31 [273] | 79 [703] | 128 [1133] | 177 [1564] | 250 [2209] | 341 | | |
| | 45 [12] | 21 [190] | 70 [622] | 119 [1053] | 168 [1485] | 241 [2133] | 455 | | |
| | 57 [15] | 10 [93] | 60 [528] | 109 [964] | 158 [1399] | 233 [533] | 569 | | |
| Torque - Nm [lb-in], Speed rpm | | | | | | | | | |
| | | 55 [486] | 110 [971] | 165 [1457] | 220 [1943] | 302 [2671] | | | |
| Theoretical Torque - Nm [lb-in] | | | | | | | | | |

Overall Efficiency - 70 - 100% 40 - 69% 0 - 39%

| | | Pressure - bars [psi] | | | | Max. Cont. | Max. Inter. | | |
|--|---------|-----------------------|------------|------------|------------|------------|-------------|-----------------|--|
| 160 | | 35 [500] | 69 [1000] | 104 [1500] | 138 [2000] | 190 [2750] | | | |
| 161 cc [9.8 in ³ /rev.] Intermittent Ratings - 10% of Operation | | | | | | | | | |
| Flow - lpm [gpm] | 2 [0.5] | 67 [590] | 131 [1158] | 195 [1726] | | | 12 | Theoretical rpm | Tested at 54°C [129°F] with an oil viscosity of 46cSt [213 SUS]. |
| | 4 [1] | 70 [620] | 139 [1228] | 207 [1836] | 276 [2445] | | 24 | | |
| | 8 [2] | 72 [641] | 146 [1295] | 220 [1949] | 294 [2604] | 405 [3585] | 47 | | |
| | 11 [3] | 72 [636] | 148 [1313] | 225 [1991] | 301 [2668] | 416 [3684] | 71 | | |
| | 15 [4] | 70 [617] | 148 [1307] | 226 [1997] | 304 [2687] | 421 [3722] | 94 | | |
| | 19 [5] | 67 [590] | 145 [1287] | 224 [1984] | 303 [2682] | 421 [3728] | 118 | | |
| | 27 [7] | 59 [518] | 138 [1222] | 218 [1927] | 297 [2631] | 417 [3688] | 165 | | |
| | 34 [9] | 49 [429] | 128 [1137] | 208 [1845] | 288 [2552] | 408 [3614] | 212 | | |
| | 45 [12] | 31 [271] | 111 [982] | 191 [1693] | 272 [2404] | 392 [3471] | 282 | | |
| | 57 [15] | 10 [85] | 90 [800] | 171 [1516] | 252 [2231] | 352 [486] | 353 | | |
| Torque - Nm [lb-in], Speed rpm | | | | | | | | | |
| | | 88 [783] | 177 [1565] | 265 [2348] | 354 [3131] | 486 [4305] | | | |
| Theoretical Torque - Nm [lb-in] | | | | | | | | | |

Overall Efficiency - 70 - 100% 40 - 69% 0 - 39%



| | | | | | | |
|------------|-----------------------|-----------|------------|------------|------------|-------------|
| 200 | Pressure - bars [psi] | | | | Max. Cont. | Max. Inter. |
| | 35 [500] | 69 [1000] | 104 [1500] | 138 [2000] | 190 [2750] | |

200 cc [12.2 in³/rev.] Intermittent Ratings - 10% of Operation

| | | | | | | | | |
|-------------------|---------|----------|------------|------------|------------|------------|-----------------|-----|
| Max. Inter. Cont. | 2 [0.5] | 84 [742] | 164 [1447] | 243 [2152] | | | Theoretical rpm | 10 |
| | 4 [1] | 88 [778] | 173 [1534] | 259 [2289] | 344 [3045] | | | 19 |
| | 8 [2] | 91 [804] | 183 [1617] | 275 [2430] | 367 [3244] | 504 [4464] | | 38 |
| | 11 [3] | 90 [796] | 185 [1639] | 280 [2482] | 376 [3325] | 519 [4589] | | 57 |
| | 15 [4] | 87 [736] | 184 [1605] | 281 [2474] | 378 [3343] | 524 [4646] | | 76 |
| | 19 [5] | 83 [736] | 181 [1605] | 280 [2474] | 378 [3343] | 525 [4646] | | 95 |
| | 27 [7] | 73 [643] | 172 [1522] | 271 [2400] | 371 [3279] | 519 [4597] | | 133 |
| | 34 [9] | 60 [528] | 159 [1411] | 259 [2295] | 359 [3178] | 509 [4503] | | 171 |
| | 45 [12] | 36 [322] | 137 [1210] | 237 [2098] | 337 [2985] | 488 [4317] | | 228 |
| | 57 [15] | 9 [80] | 110 [973] | 211 [1865] | 312 [2758] | | | 285 |

Torque - Nm [lb-in], Speed rpm

| | | | | |
|-----------|------------|------------|------------|------------|
| 110 [971] | 219 [1941] | 329 [2912] | 439 [3882] | 603 [5338] |
|-----------|------------|------------|------------|------------|

Theoretical Torque - Nm [lb-in]

Overall Efficiency - 70 - 100% 40 - 69% 0 - 39%

| | | | | | | |
|------------|-----------------------|-----------|------------|------------|------------|-------------|
| 320 | Pressure - bars [psi] | | | | Max. Cont. | Max. Inter. |
| | 35 [500] | 69 [1000] | 103 [1500] | 134 [1950] | | |

322 cc [19.7 in³/rev.] Intermittent Ratings - 10% of Operation

| | | | | | | | | |
|-------------------|---------|------------|------------|------------|------------|-----------------|----|-----|
| Max. Inter. Cont. | 4 [1] | 145 [1280] | 283 [2501] | | | Theoretical rpm | 12 | |
| | 8 [2] | 149 [1319] | 298 [2635] | 447 [3951] | 580 [5136] | | | 24 |
| | 11 [3] | 147 [1304] | 302 [2670] | 456 [4036] | 595 [5265] | | | 36 |
| | 15 [4] | 142 [1260] | 300 [2654] | 457 [4049] | 599 [5303] | | | 48 |
| | 19 [5] | 135 [1199] | 295 [2610] | 454 [4021] | 598 [5291] | | | 59 |
| | 27 [7] | 117 [1039] | 279 [2468] | 440 [3897] | 586 [5184] | | | 83 |
| | 34 [9] | 95 [841] | 258 [2279] | 420 [3717] | 566 [5012] | | | 106 |
| | 45 [12] | 55 [485] | 218 [1931] | 382 [3377] | 529 [4678] | | | 142 |
| | 57 [15] | 7 [64] | 171 [1517] | 336 [2970] | 483 [4277] | | | 177 |
| | 76 [20] | | 78 [692] | 244 [2160] | | | | 236 |

Torque - Nm [lb-in], Speed rpm

| | | | |
|------------|------------|------------|------------|
| 177 [1564] | 354 [3129] | 530 [4693] | 689 [6102] |
|------------|------------|------------|------------|

Theoretical Torque - Nm [lb-in]

Overall Efficiency - 70 - 100% 40 - 69% 0 - 39%

| | | | | | | |
|------------|-----------------------|-----------|------------|------------|------------|-------------|
| 230 | Pressure - bars [psi] | | | | Max. Cont. | Max. Inter. |
| | 35 [500] | 69 [1000] | 104 [1500] | 121 [1750] | 138 [2000] | 166 [2400] |

231 cc [14.1 in³/rev.] Intermittent Ratings - 10% of Operation

| | | | | | | | | |
|-------------------|---------|-----------|------------|------------|------------|------------|-----------------|-----|
| Max. Inter. Cont. | 2 [0.5] | 98 [864] | 190 [1678] | 282 [2493] | | | Theoretical rpm | 9 |
| | 4 [1] | 102 [905] | 201 [1779] | 300 [2652] | 349 [3089] | 398 [3526] | | 17 |
| | 8 [2] | 106 [934] | 212 [1875] | 318 [2816] | 371 [3286] | 425 [3757] | | 33 |
| | 11 [3] | 104 [925] | 215 [1900] | 325 [2876] | 380 [3363] | 435 [3851] | | 50 |
| | 15 [4] | 101 [895] | 214 [1890] | 326 [2885] | 382 [3382] | 438 [3880] | | 66 |
| | 19 [5] | 96 [853] | 210 [1860] | 324 [2866] | 381 [3369] | 438 [3872] | | 83 |
| | 27 [7] | 84 [743] | 199 [1761] | 314 [2780] | 372 [3289] | 429 [3798] | | 115 |
| | 34 [9] | 69 [607] | 184 [1631] | 300 [2655] | 358 [3167] | 416 [3679] | | 148 |
| | 45 [12] | 41 [364] | 157 [1393] | 274 [2422] | 332 [2936] | 390 [3451] | | 197 |
| | 57 [15] | 9 [76] | 125 [1111] | 242 [2145] | 301 [2662] | 359 [3180] | | 247 |
| | 76 [20] | | 62 [551] | 181 [1600] | 240 [2124] | | | 329 |

Torque - Nm [lb-in], Speed rpm

| | | | | | |
|------------|------------|------------|------------|------------|------------|
| 127 [1121] | 253 [2242] | 380 [3363] | 443 [3924] | 507 [4484] | 608 [5381] |
|------------|------------|------------|------------|------------|------------|

Theoretical Torque - Nm [lb-in]

Overall Efficiency - 70 - 100% 40 - 69% 0 - 39%

| | | | | | | |
|------------|-----------------------|-----------|------------|------------|------------|-------------|
| 400 | Pressure - bars [psi] | | | | Max. Cont. | Max. Inter. |
| | 35 [508] | 70 [1015] | 100 [1450] | 135 [1960] | | |

404 cc [24.4 in³/rev.] Intermittent Ratings - 10% of Operation

| | | | | | | | | |
|-------------------|---------|------------|------------|------------|------------|-----------------|---|-----|
| Max. Inter. Cont. | 2 [0.5] | 171 [1513] | 341 [3018] | | | Theoretical rpm | 5 | |
| | 5 [1] | 210 [1858] | 353 [3124] | 537 [4752] | 687 [6080] | | | 12 |
| | 10 [3] | 211 [1867] | 373 [3301] | 548 [4850] | 693 [6133] | | | 25 |
| | 15 [4] | 207 [1832] | 386 [3416] | 546 [4832] | 732 [6478] | | | 37 |
| | 20 [5] | 192 [1699] | 377 [3336] | 531 [4699] | 753 [6664] | | | 50 |
| | 25 [7] | 188 [1664] | 370 [3274] | 545 [4823] | 758 [6708] | | | 62 |
| | 30 [8] | 176 [1558] | 365 [3230] | 534 [4726] | 737 [6522] | | | 74 |
| | 40 [11] | 144 [1274] | 327 [2894] | 513 [4540] | 719 [6363] | | | 99 |
| | 50 [12] | 112 [991] | 293 [2593] | 476 [4212] | 688 [6088] | | | 124 |
| | 57 [15] | 85 [752] | 266 [2354] | 433 [3832] | 643 [5690] | | | 141 |
| | 75 [20] | 11 [97] | 180 [1593] | 337 [2982] | | | | 186 |

Torque - Nm [lb-in], Speed rpm

| | | | |
|------------|------------|------------|------------|
| 225 [1991] | 450 [3982] | 643 [5690] | 868 [7681] |
|------------|------------|------------|------------|

Theoretical Torque - Nm [lb-in]

Overall Efficiency - 70 - 100% 40 - 69% 0 - 39%



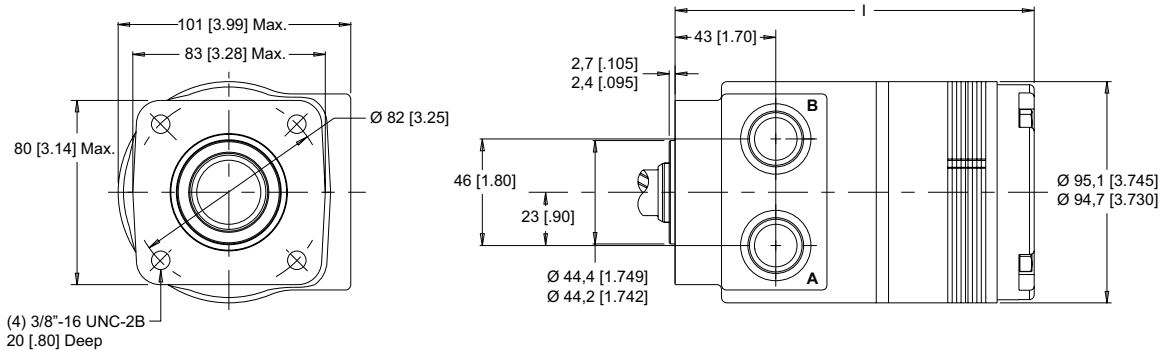
NOTE: Dimensions shown are without paint. Paint thickness can be up to 0,13 [.005]

275 & 276 SERIES HOUSINGS (4-HOLE SQUARE MOUNT)

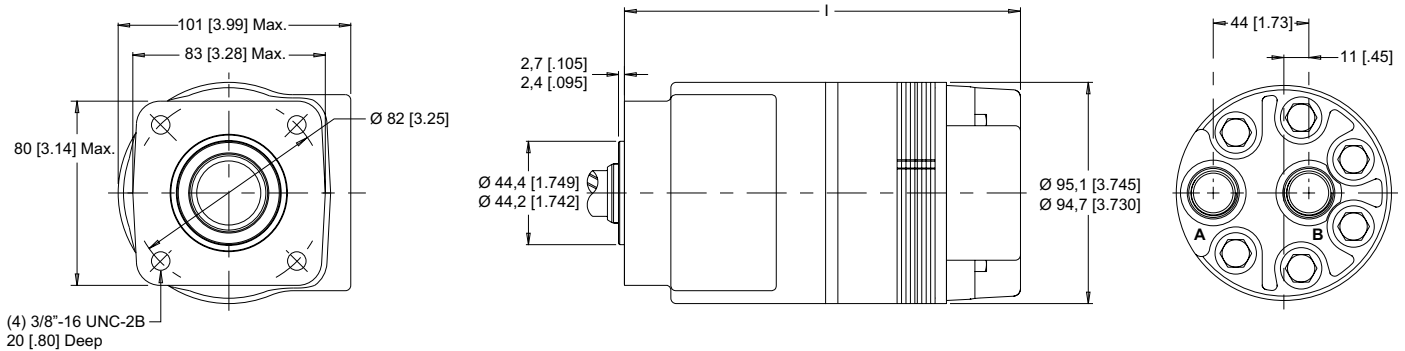
F30 4-Hole 1/2" NPT Front Ports

F31 4-Hole 7/8" O-Ring Front Ports

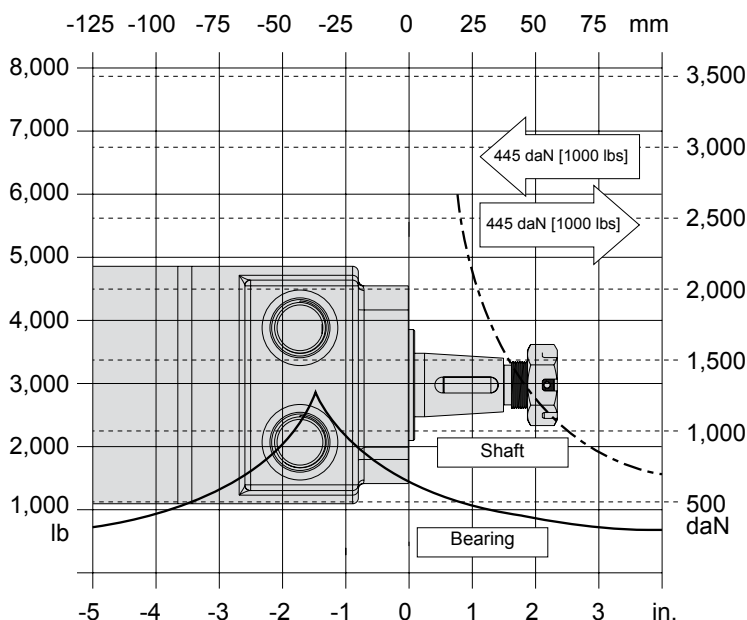
F38 4-Hole 1/2" BSP.F Front Ports



F26 4-Hole 3/4" O-Ring End Ports



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 9.



| LENGTH / WEIGHT CHART - DIMENSION I | | | | |
|-------------------------------------|-----------------|------------|------------|------------|
| Code | F30, F31, & F38 | | F26 | |
| | mm [in] | kg [lb] | mm [in] | kg [lb] |
| 040 | 137 [5.39] | 6,3 [13.9] | 156 [6.16] | 6,9 [15.2] |
| 045 | 138 [5.43] | 6,4 [14.1] | 157 [6.19] | 7,0 [15.3] |
| 060 | 141 [5.55] | 6,5 [14.3] | 160 [6.31] | 7,1 [15.6] |
| 070 | 143 [5.63] | 6,5 [14.3] | 162 [6.38] | 7,1 [15.7] |
| 090 | 147 [5.79] | 6,7 [14.7] | 166 [6.52] | 7,3 [16.1] |
| 100 | 149 [5.87] | 6,8 [15.0] | 168 [6.62] | 7,4 [16.3] |
| 130 | 155 [6.10] | 7,0 [15.4] | 174 [6.84] | 7,6 [16.8] |
| 160 | 161 [6.34] | 7,3 [16.1] | 180 [7.09] | 7,9 [17.3] |
| 200 | 169 [6.65] | 7,6 [16.7] | 188 [7.39] | 8,2 [18.0] |
| 230 | 175 [6.89] | 7,8 [17.2] | 194 [7.63] | 8,4 [18.5] |
| 320 | 193 [7.60] | 8,5 [18.7] | 212 [8.34] | 9,1 [20.1] |
| 400 | 193 [7.60] | 8,5 [18.7] | 212 [8.34] | 9,1 [20.1] |

NOTE: WG motor weights vary $\pm 0,5$ kg [1 lbs] depending upon motor configuration.



NOTE: Dimensions shown are without paint. Paint thickness can be up to 0,13 [.005]

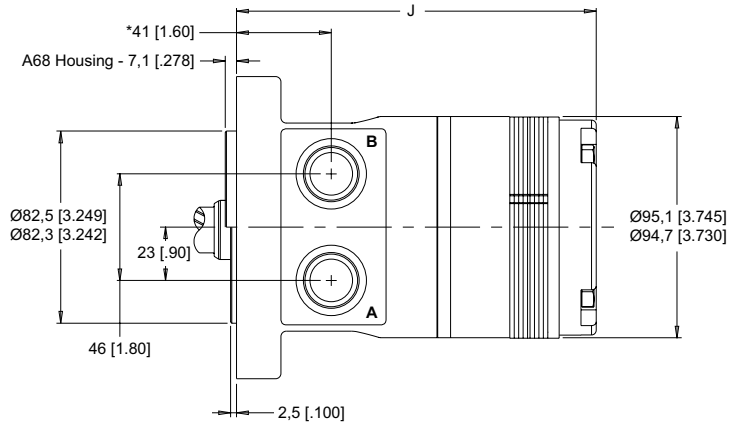
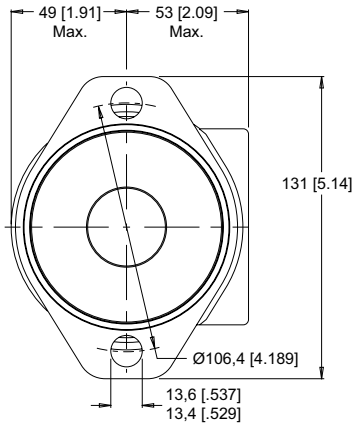
275 & 276 SERIES HOUSINGS (SAE A MOUNT)

A10 2-Hole 1/2" NPT Front Ports

A11 2-Hole 7/8" O-Ring Front Ports

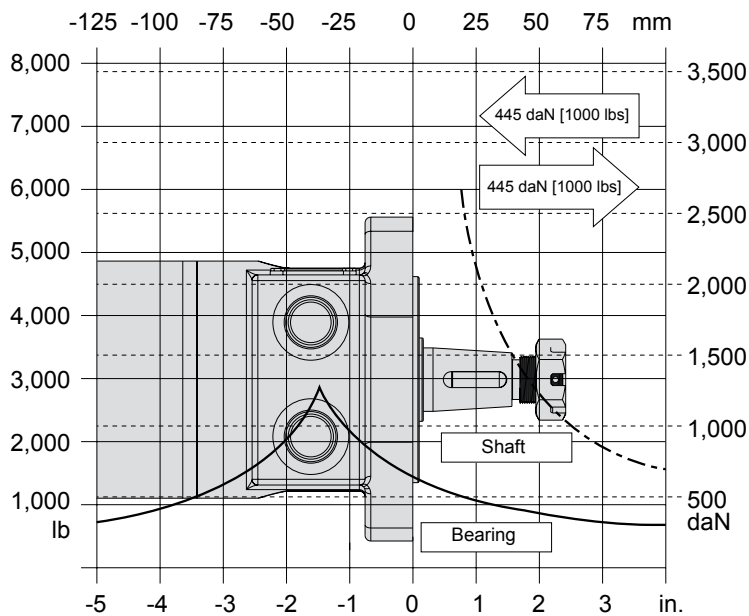
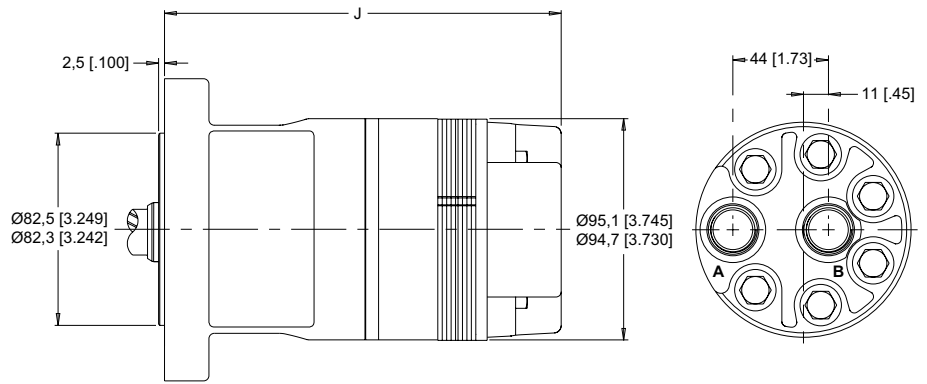
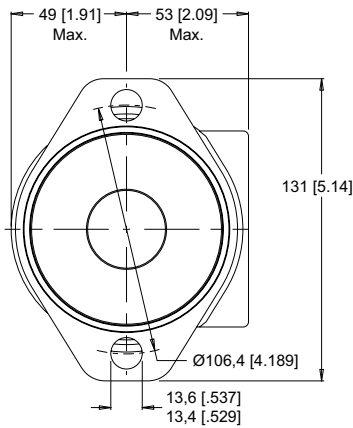
A18 2-Hole 1/2" BSP.F Front Ports

A68 2-Hole 1/2" BSP.F Front Ports With Tall Pilot



NOTE: * Subtract 4,5 [.178] from this dimension for the A68 housing.

A06 2-Hole 3/4" O-Ring End Ports



| LENGTH / WEIGHT CHART - DIMENSION J | | | | |
|-------------------------------------|--------------------------|------------|------------|------------|
| | A10, A11, A17, A18 & A68 | | A06 | |
| Code | mm [in] | kg [lb] | mm [in] | kg [lb] |
| 040 | 137 [5.39] | 6,7 [14.7] | 156 [6.16] | 7,3 [15.9] |
| 045 | 138 [5.43] | 6,7 [14.7] | 157 [6.19] | 7,3 [16.0] |
| 060 | 141 [5.55] | 6,8 [15.0] | 160 [6.31] | 7,4 [16.3] |
| 070 | 143 [5.63] | 6,9 [15.2] | 162 [6.38] | 7,5 [16.4] |
| 090 | 147 [5.79] | 7,0 [15.4] | 166 [6.52] | 7,6 [16.8] |
| 100 | 149 [5.87] | 7,1 [15.6] | 168 [6.62] | 7,7 [17.0] |
| 130 | 155 [6.10] | 7,4 [16.3] | 174 [6.84] | 8,0 [17.5] |
| 160 | 161 [6.34] | 7,6 [16.7] | 180 [7.09] | 8,2 [18.0] |
| 200 | 169 [6.65] | 7,9 [17.4] | 188 [7.39] | 8,5 [18.7] |
| 230 | 175 [6.89] | 8,1 [17.8] | 194 [7.63] | 8,7 [19.2] |
| 320 | 193 [7.60] | 8,9 [19.6] | 212 [8.34] | 9,5 [20.8] |
| 400 | 193 [7.60] | 8,9 [19.6] | 212 [8.34] | 9,5 [20.8] |

NOTE: WG motor weights vary ± 0,5 kg [1 lbs] depending upon motor configuration.

NOTE: See bearing curve explanation on page 6.



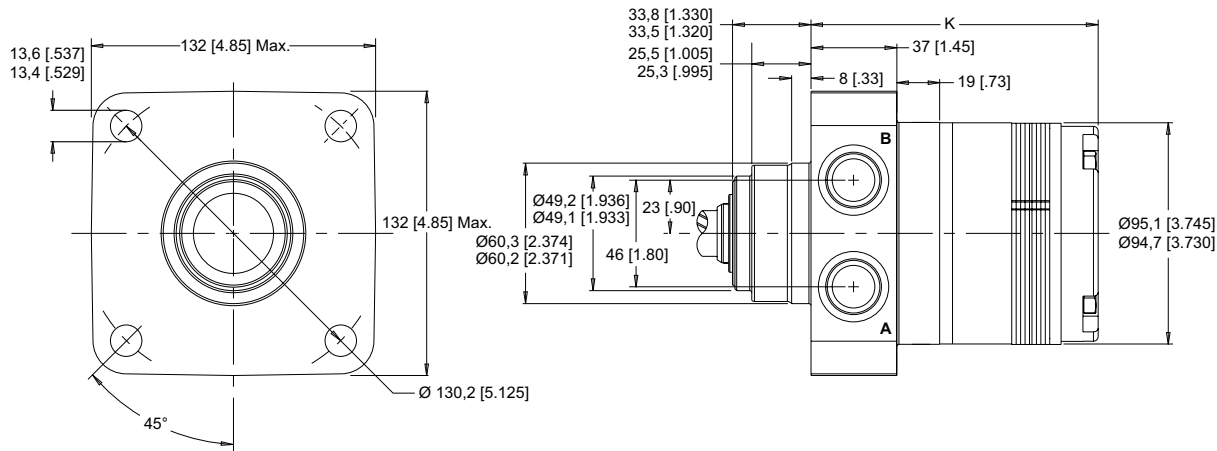
NOTE: Dimensions shown are without paint. Paint thickness can be up to 0,13 [.005]

275 & 276 SERIES HOUSINGS (WHEEL MOUNT)

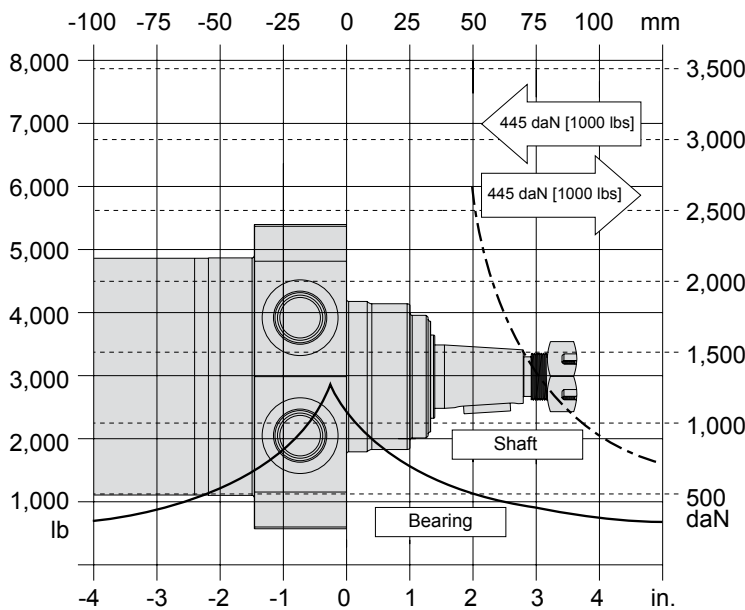
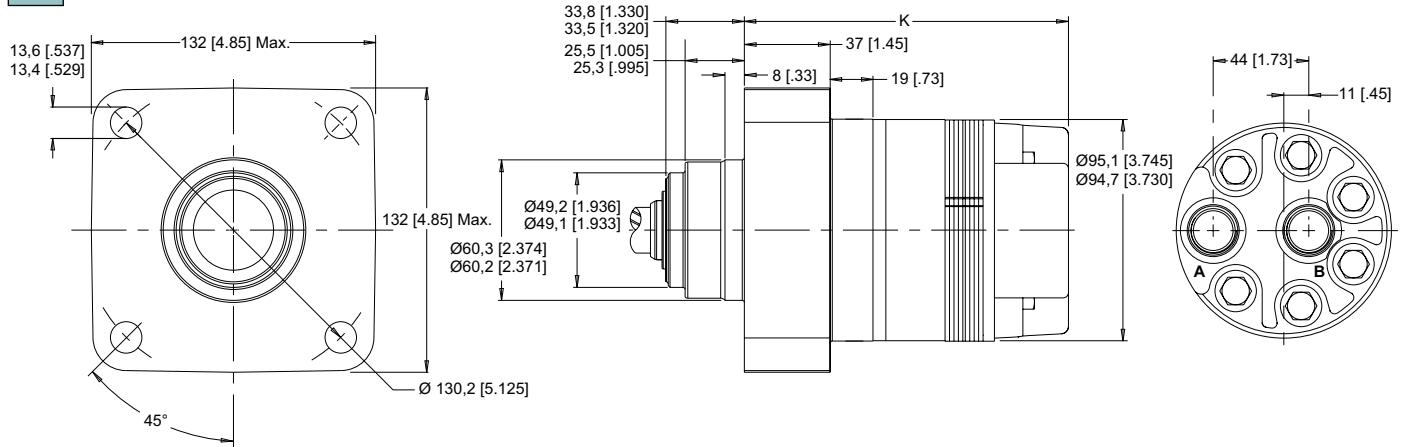
W30 4-Hole 1/2" NPT Front Ports

W31 4-Hole 7/8" O-Ring Front Ports

W38 4-Hole 1/2" BSP.F Front Ports



W26 4-Hole 3/4" O-Ring End Ports



| LENGTH / WEIGHT CHART - DIMENSION K | | | | |
|-------------------------------------|-----------------|------------|------------|------------|
| Code | W30, W31, & W38 | | W26 | |
| | mm [in] | kg [lb] | mm [in] | kg [lb] |
| 040 | 106 [4.17] | 7,0 [15.4] | 125 [4.93] | 7,6 [16.7] |
| 045 | 106 [4.17] | 7,0 [15.4] | 125 [4.95] | 7,6 [16.8] |
| 060 | 110 [4.33] | 7,1 [15.6] | 129 [5.07] | 7,7 [17.0] |
| 070 | 112 [4.41] | 7,2 [15.8] | 131 [5.15] | 7,8 [17.2] |
| 090 | 115 [4.53] | 7,4 [16.3] | 134 [5.29] | 8,0 [17.5] |
| 100 | 118 [4.65] | 7,4 [16.3] | 137 [5.39] | 8,0 [17.7] |
| 130 | 123 [4.84] | 7,7 [16.9] | 142 [5.61] | 8,3 [18.2] |
| 160 | 130 [5.12] | 7,9 [17.4] | 149 [5.86] | 8,5 [18.8] |
| 200 | 137 [5.39] | 8,3 [18.3] | 156 [6.16] | 8,9 [19.5] |
| 230 | 144 [5.67] | 8,5 [18.7] | 163 [6.40] | 9,1 [20.0] |
| 320 | 162 [6.38] | 9,2 [20.2] | 181 [7.11] | 9,8 [21.6] |
| 400 | 162 [6.38] | 9,2 [20.2] | 181 [7.11] | 9,8 [21.6] |

NOTE: WG motor weights vary ± 0,5 kg [1 lbs] depending upon motor configuration.

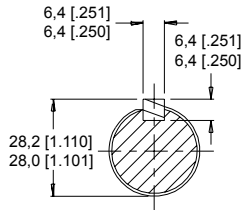
NOTE: See bearing curve explanation on page 6.



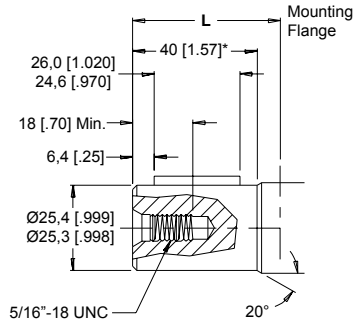
275 & 276 SERIES SHAFTS

10 1" Straight

Max. Torque: 655 Nm [5,800 lb-in]



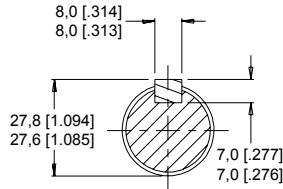
15 1" Straight Extended



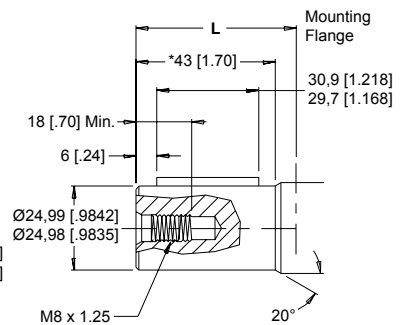
NOTE: * For the 15 Shaft add 43 [1.69] to this dimension.

12 25mm Straight

Max. Torque: 678 Nm [6,000 lb-in]



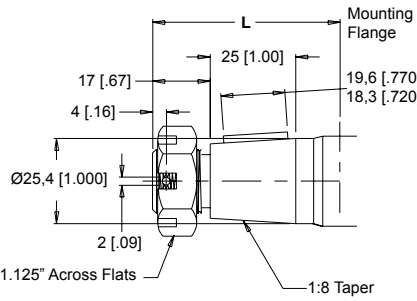
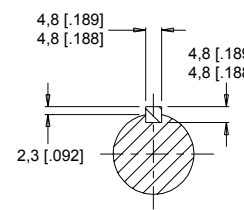
89 25mm Straight Modified



NOTE: * For the 89 Shaft add 1 [.04] to this dimension.

13 1" Tapered

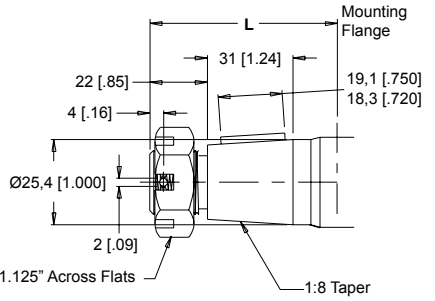
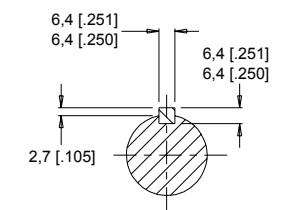
Max. Torque: 655 Nm [5,800 lb-in]



3/4"-28 Slotted Nut 1.125" Across Flats
Torque to 150 ft lb.

14 1" Tapered Extended

Max. Torque: 655 Nm [5,800 lb-in]



3/4"-28 Slotted Nut 1.125" Across Flats
Torque to 150 ft lb.

SHAFT LENGTHS

| MOUNTING FLANGE TO SHAFT END - Dimension L | | | |
|--|--------------|-------------|-------------|
| Code | 4-Hole Mount | SAE A Mount | Wheel Mount |
| 10 | 45 [1.77] | 45 [1.77] | 76 [2.99] |
| 12 | 49 [1.94] | 49 [1.94] | 80 [3.16] |
| 13 | 56 [2.20] | 56 [2.20] | 87 [3.43] |
| 14 | 61 [2.40] | 61 [2.40] | 92 [3.63] |
| 89 | 51 [2.00] | 51 [2.00] | 82 [3.22] |

| BEARING LOAD MULTIPLICATION FACTOR TABLE | | | |
|--|--------|-----|--------|
| RPM | FACTOR | RPM | FACTOR |
| 50 | 1.23 | 500 | 0.62 |
| 100 | 1.00 | 600 | 0.58 |
| 200 | 0.81 | 700 | 0.56 |
| 300 | 0.72 | 800 | 0.50 |
| 400 | 0.66 | | |

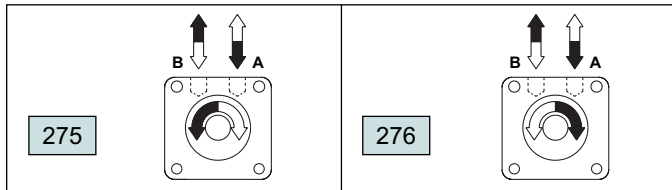


275 & 276 SERIES MODEL CODE BUILDER

| SERIES | DISPLACEMENT | HOUSING | SHAFT | PAINT | CAVITY | ADD ON | MISCELLANEOUS |
|--------|--------------|---------|--------|--------|--------|--------|---------------|
| STEP 1 | STEP 2 | STEP 3 | STEP 4 | STEP 5 | STEP 6 | STEP 7 | STEP 8 |

STEP 1 - Select a series

- 275 Counterclockwise Rotation
- 276 Clockwise Rotation



NOTE: For applications requiring the motor to rotate in only one direction, shaft seal life may be prolonged by pressurizing the "A" port of the motor. To obtain the desired direction of shaft rotation, use the graphic at the left to determine the rotation code for the motor. For bi-directional applications, the 275 series is recommended. Preferred rotation is determined by internal valving design.

STEP 2 - Select a displacement option

| | | | | | |
|-----|--------|----------------------------|-----|--------|-----------------------------|
| 040 | 41 cc | [2.5 in ³ /rev] | 130 | 129 cc | [7.9 in ³ /rev] |
| 045 | 44 cc | [2.7 in ³ /rev] | 160 | 161 cc | [9.8 in ³ /rev] |
| 060 | 60 cc | [3.6 in ³ /rev] | 200 | 200 cc | [12.2 in ³ /rev] |
| 070 | 70 cc | [4.3 in ³ /rev] | 230 | 231 cc | [14.1 in ³ /rev] |
| 090 | 88 cc | [5.4 in ³ /rev] | 320 | 322 cc | [19.7 in ³ /rev] |
| 100 | 100 cc | [6.1 in ³ /rev] | 400 | 404 cc | [24.4 in ³ /rev] |

STEP 3 - Select a housing option

- A06 2-Hole 3/4" O-Ring End Ports (S)
- A10 2-Hole 1/2" NPT Front Ports (S)
- A11 2-Hole 7/8" O-Ring Front Ports (S)
- A18 2-Hole 1/2" BSP.F Front Ports (S)
- A68 2-Hole 1/2" BSP.F Front Ports With Tall Pilot
- F26 4-Hole 3/4" O-Ring End Ports (S)
- F30 4-Hole 1/2" NPT Front Ports (S)
- F31 4-Hole 7/8" O-Ring Front Ports (S)
- F38 4-Hole 1/2" BSP.F Front Ports (S)
- W26 4-Hole 3/4" O-Ring End Ports
- W30 4-Hole 1/2" NPT Front Ports
- W31 4-Hole 7/8" O-Ring Front Ports
- W38 4-Hole 1/2" BSP.F Front Ports

STEP 4 - Select a shaft option

- | | | | |
|----|---------------|----|--------------------------|
| 10 | 1" Straight | 14 | 1" Tapered Extended (S) |
| 12 | 25mm Straight | 15 | 1" Straight Extended (S) |
| 13 | 1" Tapered | 89 | 25mm Straight Modified |

NOTE: The 14 & 15 shafts are for use in speed sensor motors only.

STEP 5 - Select a paint option

- A Black
- B Black (unpainted flange face)

STEP 6 - Select a valve cavity option

- A None

STEP 7 - Select an add on option

- A Standard
- B Lock Nut
- C Solid Hex Nut
- W 4-Pin Dual Male Weatherpack Connector (S)
- X 4-Pin M12 Dual Male Connector (S)
- Y 3-Pin Single Male Weatherpack Connector (S)
- Z 4-Pin M12 Single Male Connector (S)

NOTE: (S) - STEP 3 Housings available for use with speed sensors. STEP 4 Shafts available for use with speed sensors. STEP 7 Speed sensor options.

STEP 8 - Select a miscellaneous option

- AA None
- AC Freeturning Rotor

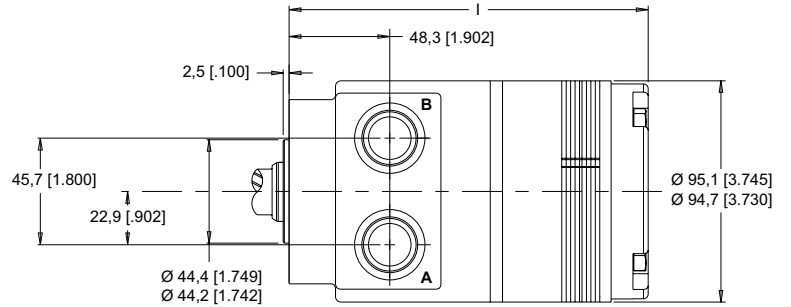
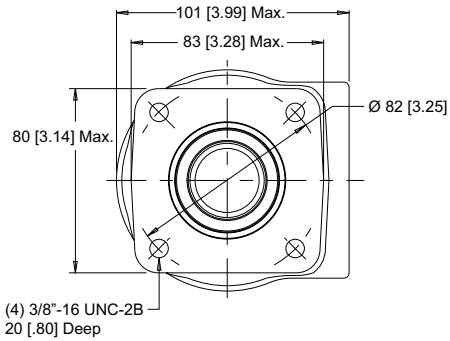


NOTE: Dimensions shown are without paint. Paint thickness can be up to 0,13 [.005]

277 & 278 SERIES HOUSINGS (4-HOLE SQUARE & WHEEL MOUNTS)

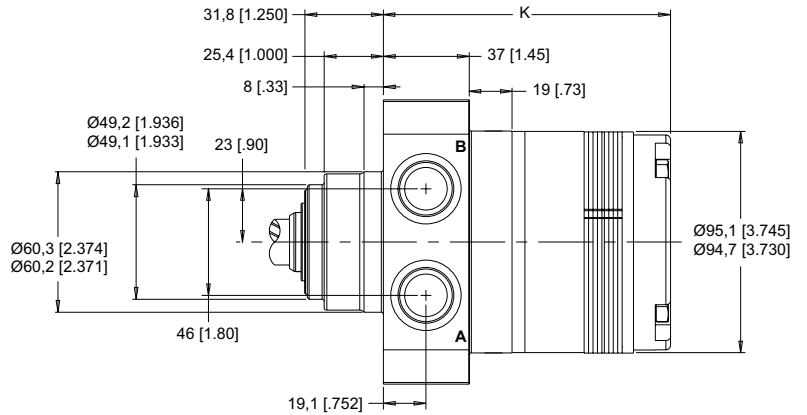
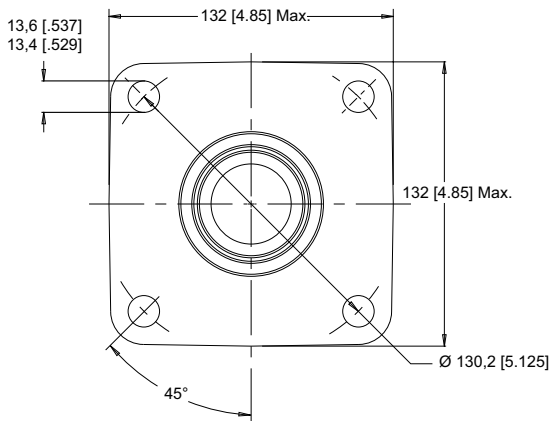
F30 4-Hole 1/2" NPT Front Ports

F31 4-Hole 7/8" O-Ring Front Ports



NOTE: Dimension I and bearing curve information is located on page 6.

W31 4-Hole 7/8" O-Ring Front Ports



NOTE: Dimension K and bearing curve information is located on page 8.

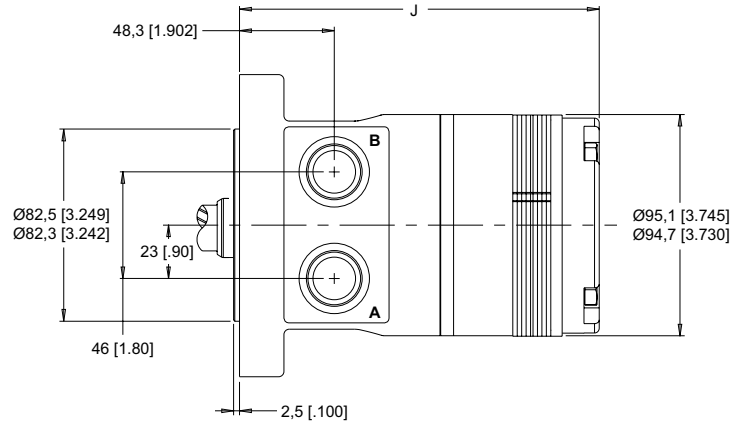
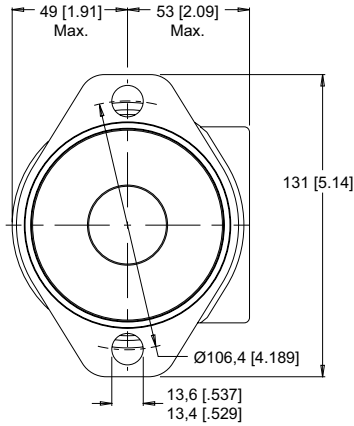


NOTE: Dimensions shown are without paint. Paint thickness can be up to 0,13 [.005]

277 & 278 SERIES HOUSINGS (SAE A MOUNT)

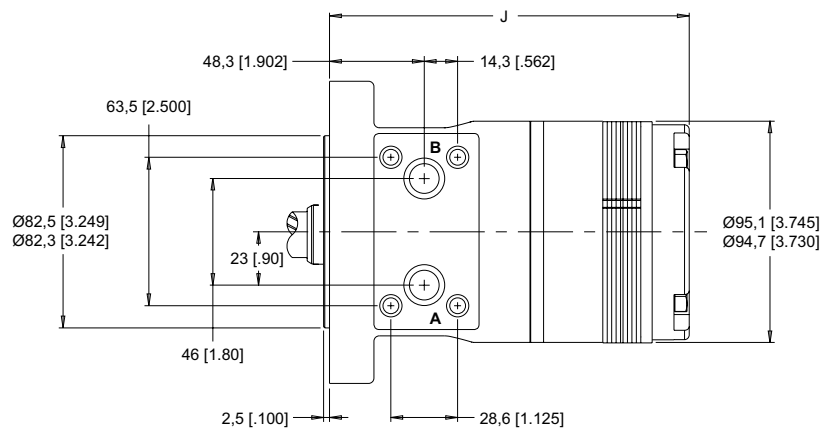
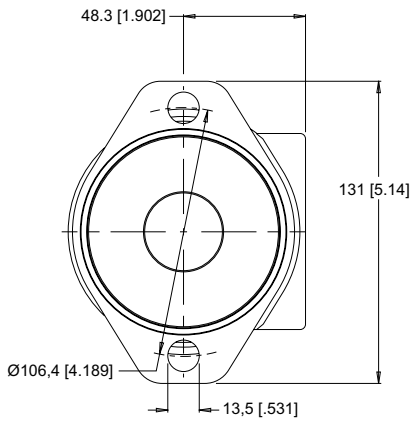
A10 2-Hole 1/2" NPT Front Ports

A11 2-Hole 7/8" O-Ring Front Ports



NOTE: Dimension J and bearing curve information is located on page 7.

A17 2-Hole Manifold Ports



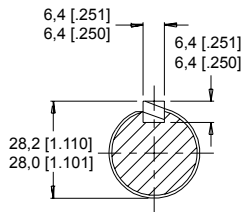
NOTE: Dimension J and bearing curve information is located on page 7.



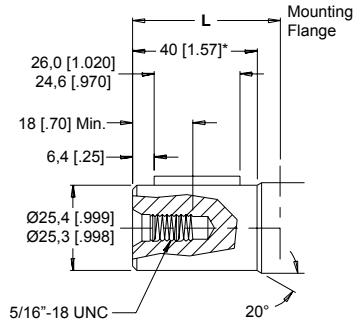
277 & 278 SERIES SHAFTS

10 1" Straight

Max. Torque: 655 Nm [5,800 lb-in]



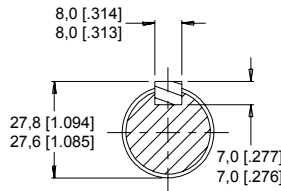
15 1" Straight Extended



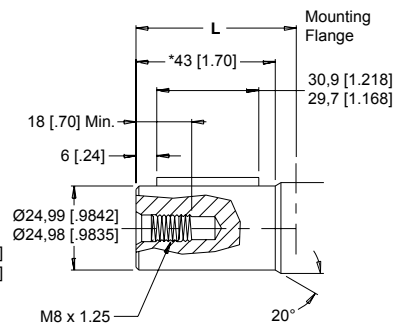
NOTE: * For the 15 Shaft add 43 [1.69] to this dimension.

12 25mm Straight

Max. Torque: 678 Nm [6,000 lb-in]



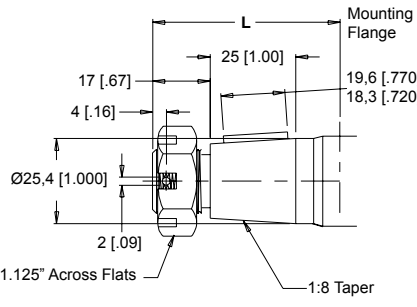
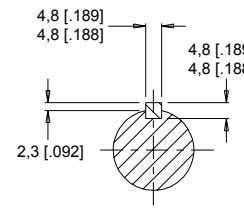
89 25mm Straight Modified



NOTE: * For the 89 Shaft add 1 [0.04] to this dimension.

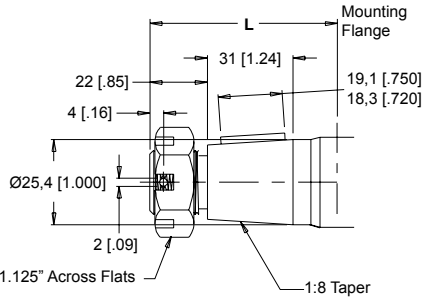
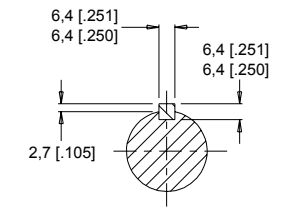
13 1" Tapered

Max. Torque: 655 Nm [5,800 lb-in]



14 1" Tapered Extended

Max. Torque: 655 Nm [5,800 lb-in]



SHAFT LENGTHS

| MOUNTING FLANGE TO SHAFT END - Dimension L | | | |
|--|--------------|-------------|-------------|
| Code | 4-Hole Mount | SAE A Mount | Wheel Mount |
| 10 | 45 [1.77] | 45 [1.77] | 76 [2.99] |
| 12 | 49 [1.94] | 49 [1.94] | 80 [3.16] |
| 13 | 56 [2.20] | 56 [2.20] | 87 [3.43] |
| 14 | 61 [2.40] | 61 [2.40] | 92 [3.63] |
| 89 | 51 [2.00] | 51 [2.00] | 82 [3.22] |

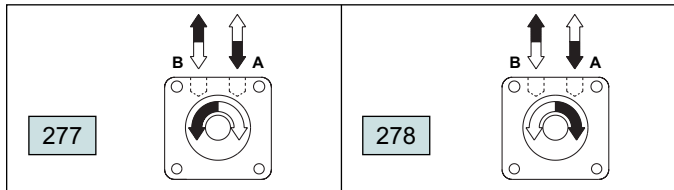


277 & 278 SERIES MODEL CODE BUILDER

| SERIES | DISPLACEMENT | HOUSING | SHAFT | PAINT | CAVITY | ADD ON | MISCELLANEOUS |
|--------|--------------|---------|--------|--------|--------|--------|---------------|
| STEP 1 | STEP 2 | STEP 3 | STEP 4 | STEP 5 | STEP 6 | STEP 7 | STEP 8 |

STEP 1 - Select a series

- 277 Counterclockwise Rotation
- 278 Clockwise Rotation



NOTE: For applications requiring the motor to rotate in only one direction, shaft seal life may be prolonged by pressurizing the "A" port of the motor. To obtain the desired direction of shaft rotation, use the graphic at the left to determine the rotation code for the motor. For bi-directional applications, the 277 series is recommended. Preferred rotation is determined by internal valving design.

STEP 2 - Select a displacement option

| | | | | | |
|-----|--------|----------------------------|-----|--------|-----------------------------|
| 040 | 41 cc | [2.5 in ³ /rev] | 130 | 129 cc | [7.9 in ³ /rev] |
| 045 | 44 cc | [2.7 in ³ /rev] | 160 | 161 cc | [9.8 in ³ /rev] |
| 060 | 60 cc | [3.6 in ³ /rev] | 200 | 200 cc | [12.2 in ³ /rev] |
| 070 | 70 cc | [4.3 in ³ /rev] | 230 | 231 cc | [14.1 in ³ /rev] |
| 090 | 88 cc | [5.4 in ³ /rev] | 320 | 322 cc | [19.7 in ³ /rev] |
| 100 | 100 cc | [6.1 in ³ /rev] | 400 | 404 cc | [24.4 in ³ /rev] |

STEP 3 - Select a housing option

- A10 2-Hole 1/2" NPT Front Ports (S)
- A11 2-Hole 7/8" O-Ring Front Ports (S)
- A17 2-Hole Manifold Ports (S)
- F30 4-Hole 1/2" NPT Front Ports (S)
- F31 4-Hole 7/8" O-Ring Front Ports (S)
- W31 4-Hole 7/8" O-Ring Front Ports

STEP 4 - Select a shaft option

| | | | |
|----|---------------|----|--------------------------|
| 10 | 1" Straight | 14 | 1" Tapered Extended (S) |
| 12 | 25mm Straight | 15 | 1" Straight Extended (S) |
| 13 | 1" Tapered | 89 | 25mm Straight Modified |

NOTE: The 14 & 15 shafts are for use in speed sensor motors only.

STEP 5 - Select a paint option

- A Black
- B Black (unpainted flange face)

STEP 6 - Select a valve cavity option

- A None

STEP 7 - Select an add on option

- A Standard
- B Lock Nut
- C Solid Hex Nut
- W 4-Pin Dual Male Weatherpack Connector (S)
- X 4-Pin M12 Dual Male Connector (S)
- Y 3-Pin Single Male Weatherpack Connector (S)
- Z 4-Pin M12 Single Male Connector (S)

NOTE: (S) - STEP 3 Housings available for use with speed sensors. STEP 4 Shafts available for use with speed sensors. STEP 7 Speed sensor options.

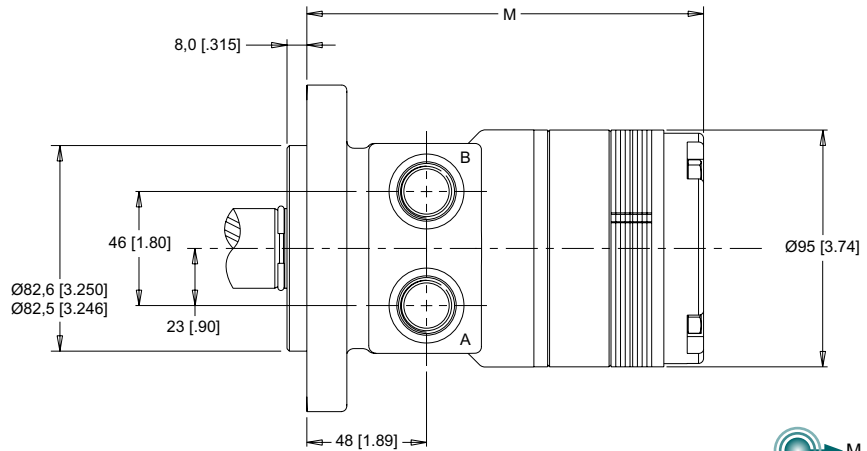
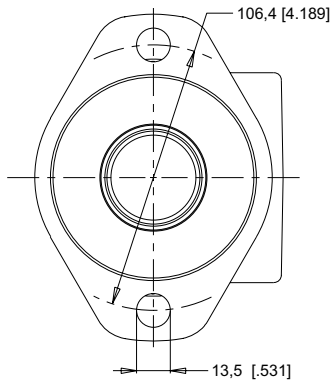
STEP 8 - Select a miscellaneous option

- AA None
- AC Freeturning Rotor



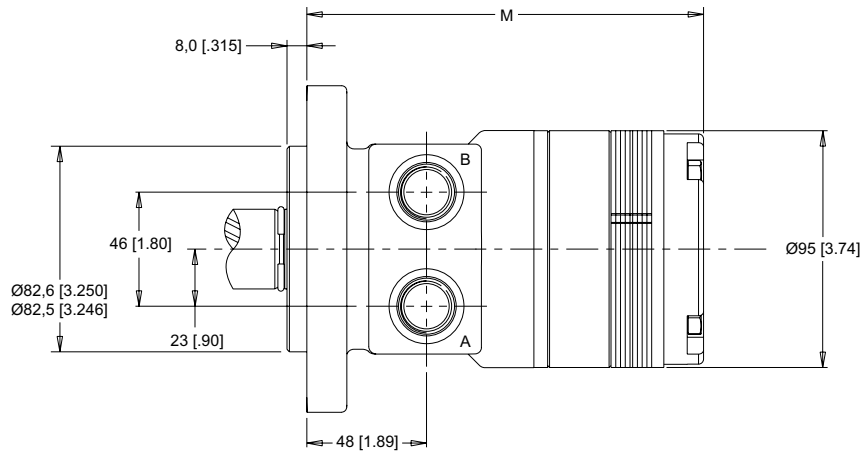
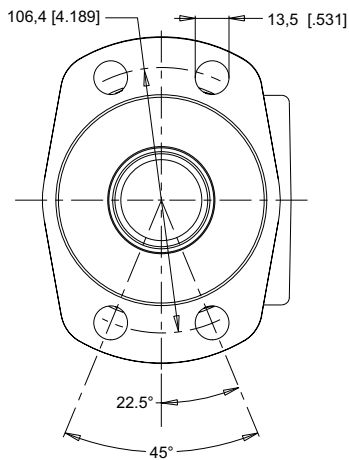
280 & 281 SERIES HOUSINGS (SAE A & MAGNETO MOUNTS)

A68 2-Hole 1/2" BSP.F Aligned Ports



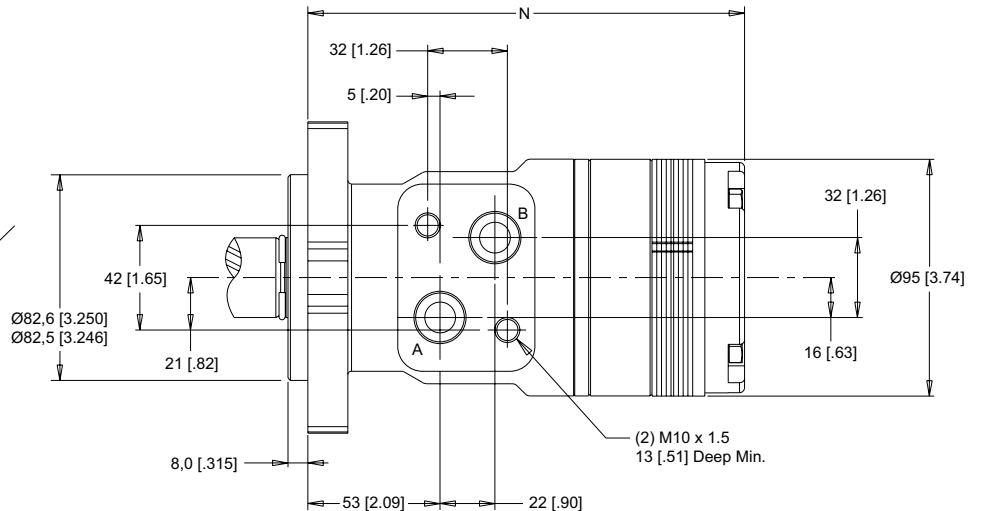
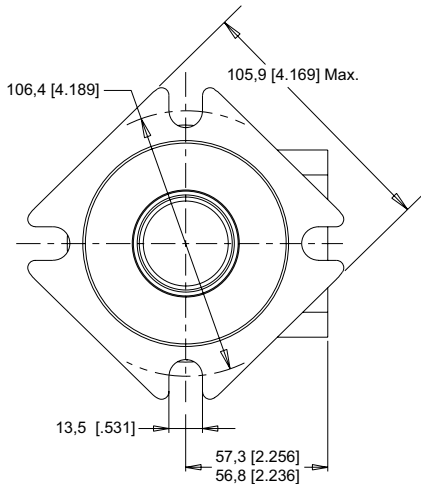
M is on page 17

AC8 4-Hole 1/2" BSP.F Aligned Ports



M is on page 17

AG3 4-Hole 1/2" BSP.F Offset Ports



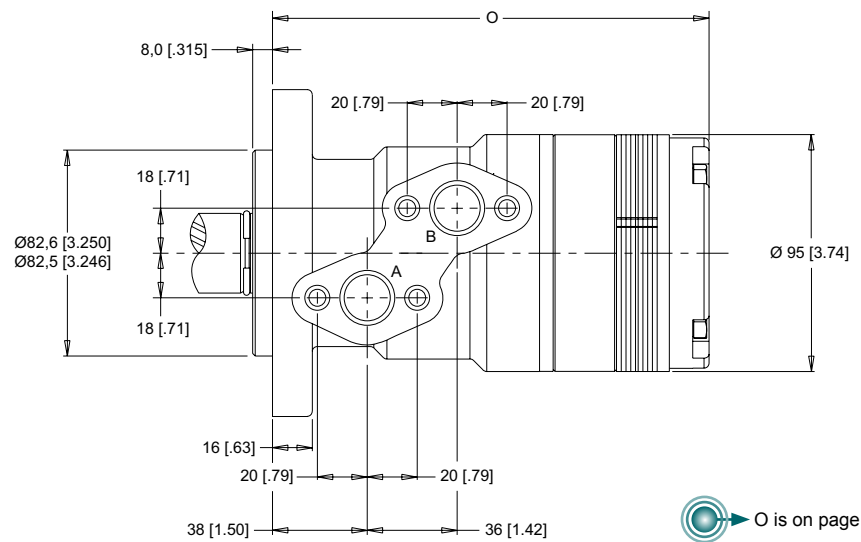
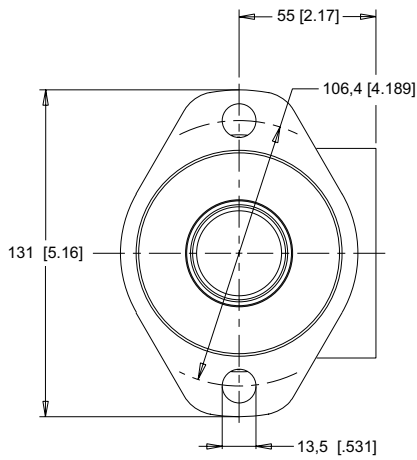
N is on page 17



NOTE: Dimensions shown are without paint. Paint thickness can be up to 0,13 [.005]

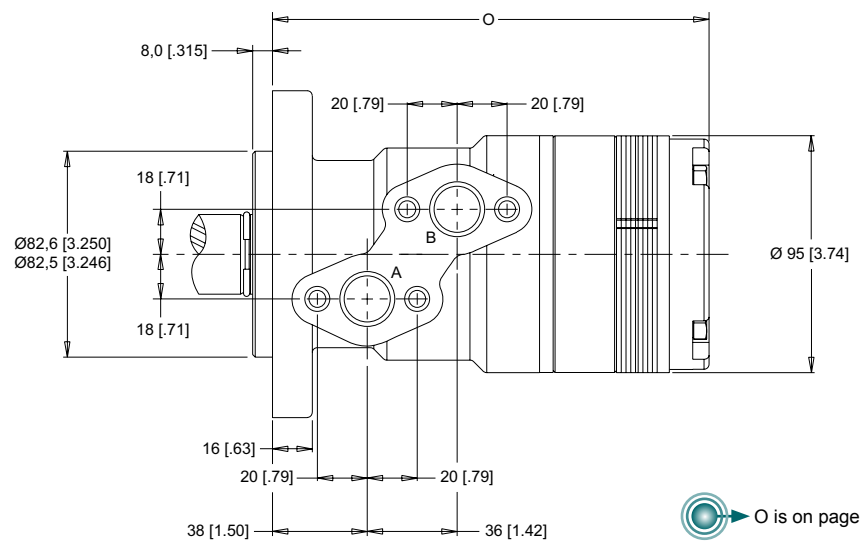
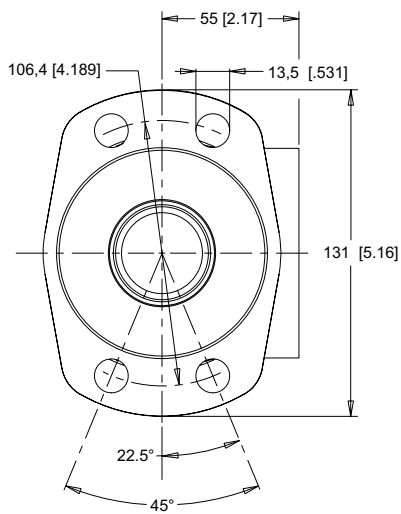
280 & 281 SERIES HOUSINGS (SAE A & MAGNETO MOUNTS)

A63 2-Hole 1/2" BSP.F Offset Manifold



O is on page 17

AC3 4-Hole 1/2" BSP.F Offset Manifold



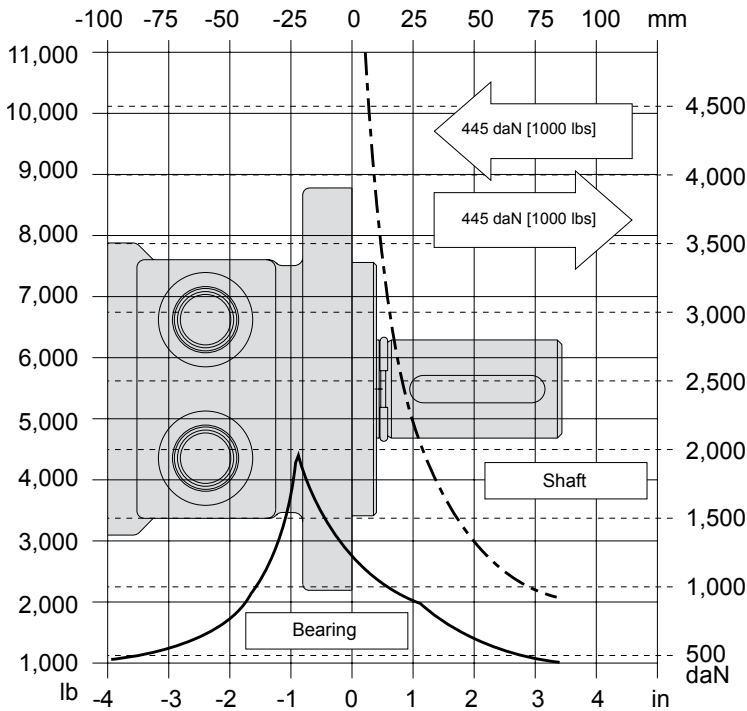
O is on page 17



280 & 281 SERIES TECHNICAL INFORMATION

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 located on page 9.

SAE A & MAGNETO MOUNTS



| LENGTH / WEIGHT CHART SAE A & Magneto - Dimension M | | |
|--|------------|------------|
| Code | mm [in] | kg [lb] |
| 040 | 141 [5.55] | 5,6 [12.3] |
| 045 | 142 [5.59] | 5,6 [12.3] |
| 060 | 145 [5.71] | 5,8 [12.8] |
| 070 | 147 [5.79] | 5,9 [13.0] |
| 090 | 150 [5.91] | 6,1 [13.4] |
| 100 | 153 [6.02] | 6,2 [13.6] |
| 130 | 159 [6.26] | 6,5 [14.3] |
| 160 | 165 [6.50] | 6,8 [15.0] |
| 200 | 173 [6.81] | 7,1 [15.6] |
| 230 | 179 [7.05] | 7,4 [16.3] |
| 320 | 197 [7.76] | 8,2 [18.0] |
| 400 | 197 [7.76] | 8,2 [18.0] |

NOTE:
WG motor weights vary $\pm 0,5$ kg [1 lbs] depending upon motor configuration. Add 0,03 kg [0,06 lb] to motor weight for Magneto mount.

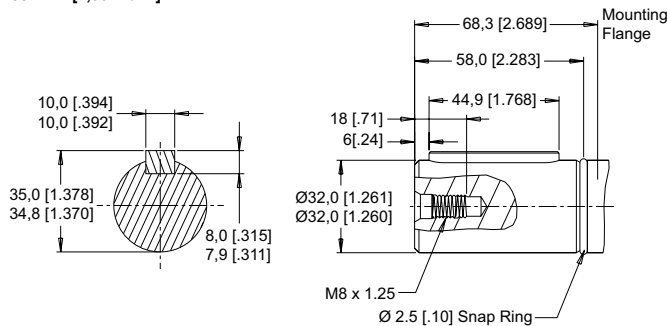
| LENGTH / WEIGHT CHART Square SAE A - Dimension N | | |
|---|------------|------------|
| Code | mm [in] | kg [lb] |
| 040 | 157 [6.18] | 6,4 [14.1] |
| 045 | 158 [6.22] | 6,4 [14.1] |
| 060 | 161 [6.34] | 6,6 [14.5] |
| 070 | 163 [6.42] | 6,7 [14.7] |
| 090 | 166 [6.54] | 6,9 [15.2] |
| 100 | 169 [6.65] | 7,0 [15.4] |
| 130 | 175 [6.89] | 7,2 [15.8] |
| 160 | 181 [7.13] | 7,5 [16.5] |
| 200 | 189 [7.44] | 7,9 [17.4] |
| 230 | 195 [7.68] | 8,2 [18.0] |
| 320 | 213 [8.39] | 9,0 [19.8] |
| 400 | 213 [8.39] | 9,0 [19.8] |

NOTE:
WG motor weights vary $\pm 0,5$ kg [1 lbs] depending upon motor configuration.

SHAFTS

21 32mm Straight

Max. Torque: 882 Nm [7,804 lb-in]



| LENGTH / WEIGHT CHART SAE A Offset Ports - Dimension O | | |
|---|------------|------------|
| Code | mm [in] | kg [lb] |
| 040 | 157 [6.18] | 6,1 [13.4] |
| 045 | 158 [6.22] | 6,2 [13.6] |
| 060 | 161 [6.34] | 6,3 [13.9] |
| 070 | 163 [6.42] | 6,4 [14.1] |
| 090 | 166 [6.54] | 6,6 [14.5] |
| 100 | 169 [6.65] | 6,7 [14.7] |
| 130 | 175 [6.89] | 7,0 [15.4] |
| 160 | 181 [7.13] | 7,3 [16.1] |
| 200 | 189 [7.44] | 7,6 [16.7] |
| 230 | 195 [7.68] | 7,9 [17.4] |
| 320 | 213 [8.39] | 8,6 [18.9] |
| 400 | 213 [8.39] | 8,6 [18.9] |

NOTE:
WG motor weights vary $\pm 0,5$ kg [1 lbs] depending upon motor configuration. Add 0,14 kg [0,31 lb] to motor weight for 2 Hole Offset Manifold

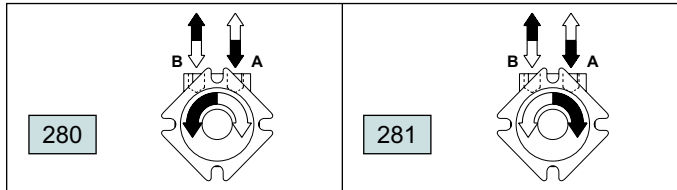


280 & 281 SERIES MODEL CODE BUILDER

| SERIES | DISPLACEMENT | HOUSING | SHAFT | PAINT | CAVITY | ADD ON | MISCELLANEOUS |
|--------|--------------|---------|--------|--------|--------|--------|---------------|
| STEP 1 | STEP 2 | STEP 3 | STEP 4 | STEP 5 | STEP 6 | STEP 7 | STEP 8 |

STEP 1 - Select a series

- 280** Counterclockwise Rotation
- 281** Clockwise Rotation



NOTE: For applications requiring the motor to rotate in only one direction, shaft seal life may be prolonged by pressurizing the "A" port of the motor. To obtain the desired direction of shaft rotation, use the graphic at the left to determine the rotation code for the motor. For bi-directional applications, the 280 series is recommended. Preferred rotation is determined by internal valving design.

STEP 2 - Select a displacement option

| | | | | | |
|------------|--------|----------------------------|------------|--------|-----------------------------|
| 040 | 41 cc | [2.5 in ³ /rev] | 130 | 129 cc | [7.9 in ³ /rev] |
| 045 | 44 cc | [2.7 in ³ /rev] | 160 | 161 cc | [9.8 in ³ /rev] |
| 060 | 60 cc | [3.6 in ³ /rev] | 200 | 200 cc | [12.2 in ³ /rev] |
| 070 | 70 cc | [4.3 in ³ /rev] | 230 | 231 cc | [14.1 in ³ /rev] |
| 090 | 88 cc | [5.4 in ³ /rev] | 320 | 322 cc | [19.7 in ³ /rev] |
| 100 | 100 cc | [6.1 in ³ /rev] | 400 | 404 cc | [24.4 in ³ /rev] |

STEP 3 - Select a housing option

- A68** 2-Hole 1/2" BSP.F Aligned Ports
- AC8** 4-Hole 1/2" BSP.F Aligned Ports
- AG3** 4-Hole 1/2" BSP.F Offset Ports
- A63** 2-Hole 1/2" BSP.F Offset Manifold Ports
- AC3** 4-Hole 1/2" BSP.F Offset Manifold Ports

STEP 4 - Select a shaft option

- 21** 32mm Straight

STEP 5 - Select a paint option

- A** Black
- B** Black (unpainted flange face)

STEP 6 - Select a valve cavity option

- A** None

STEP 7 - Select an add on option

- A** Standard

STEP 8 - Select a miscellaneous option

- AA** None
- AC** Freeturning Rotor

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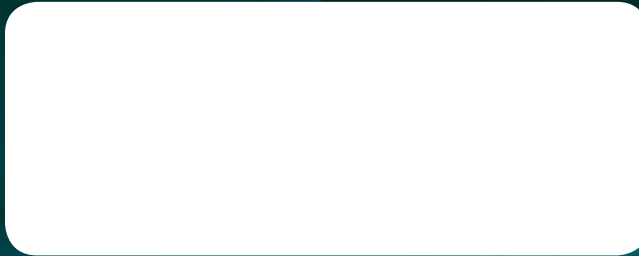
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