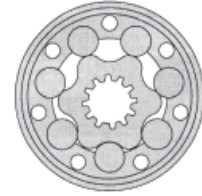
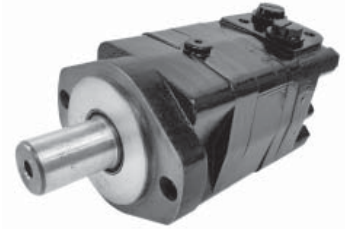


## Hydraulic Motor Model BMSY



The BMSY series motor adapts the advanced **ROLORTORC™** gear set design with **DISC** distribution flow and high pressure. These motors can be supplied with various options for multifunctional operations in accordance with the application requirements. The output shaft tapered roller bearings permit high axial and radial forces offering a smooth operation during low pressure start up and high pressure operation.

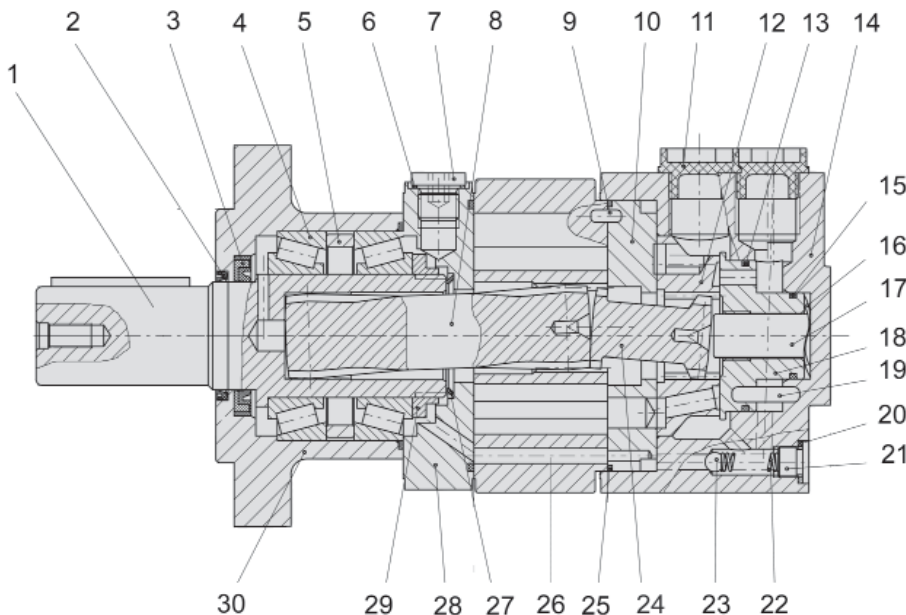
These low weight advanced construction design motors are manufactured in accordance with the requirements of the ISO 9000-2000 quality system.

**\*\* Check out our new higher pressure BMSY shaft seals - see page 79. \*\***

### Technical Specifications

| MODEL   |      | BMSY 80      | BMSY 100      | BMSY 125      | BMSY 160      | BMSY 200       | BMSY 250       | BMSY 315       | BMSY 400       | BMSY 475       |
|---|------|--------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|
| <b>Displacement</b><br><i>in<sup>3</sup>/rev (cm<sup>3</sup>/rev)</i> |      | 4.92<br>(81) | 6.15<br>(101) | 7.63<br>(125) | 9.39<br>(154) | 11.83<br>(194) | 14.83<br>(243) | 18.97<br>(311) | 24.04<br>(394) | 28.98<br>(475) |
| <b>Max Speed</b><br><i>rpm</i>  | Cont | 800          | 748           | 600           | 470           | 375            | 300            | 240            | 185            | 155            |
|   | Int. | 988          | 900           | 720           | 560           | 450            | 360            | 280            | 225            | 185            |
| <b>Max Torque</b><br><i>in•lbf</i>                                    | Cont | 1991         | 2566          | 3230          | 4292          | 5185           | 6265           | 7787           | 7786           | 8053           |
|   | Int. | 2212         | 2832          | 3540          | 4778          | 5707           | 7142           | 8495           | 8495           | 8495           |
| <b>Max Differential</b><br><i>psi</i>                                 | Cont | 2973         | 2973          | 2973          | 3045          | 3045           | 2900           | 2900           | 2320           | 2030           |
|   | Int. | 3265         | 3265          | 3265          | 3265          | 3265           | 3265           | 3265           | 2563           | 2175           |
| <b>Max Flow</b><br><i>gpm</i>   | Cont | 17.1         | 19.81         | 19.81         | 19.81         | 19.81          | 19.81          | 19.81          | 19.81          | 19.81          |
|   | Int. | 21.13        | 23.77         | 23.77         | 23.77         | 23.77          | 23.77          | 23.77          | 23.77          | 23.77          |
| <b>Weight</b>   |      | 23.70 lbs    | 24.05 lbs     | 24.75 lbs     | 25.00 lbs     | 26.15 lbs      | 27.35 lbs      | 28.95 lbs      | 30.95 lbs      | 32.80 lbs      |

Continuous = maximum of continuous operation. Intermittent = maximum operating range for 6 seconds per minute

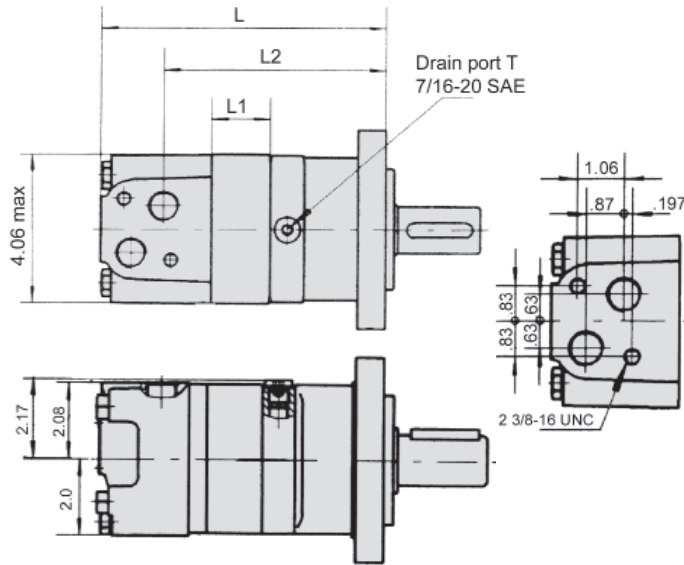


#### Diagram Key

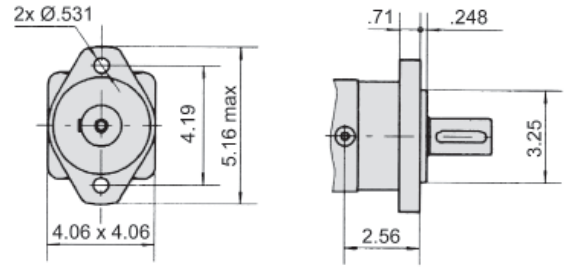
- |                      |                           |
|----------------------|---------------------------|
| 1 Output Shaft       | 16 Balancer Spring        |
| 2 Dust Seal          | 17 Spacer                 |
| 3 Shaft Seal         | 18 Balance Plate          |
| 4 Roller Bearing     | 19 Pin                    |
| 5 Bearing Spacer     | 20 Seal Washer            |
| 6 Seal Washer        | 21 Check Valve Plug       |
| 7 Case Drain Plug    | 22 Check Valve Spring     |
| 8 Drive Link         | 23 Ball Check (steel)     |
| 9 Pin                | 24 Distributor Drive Link |
| 10 Timing Plate      | 25 Body "O" Ring          |
| 11 Shipping Plug     | 26 Rolortorc™ Set         |
| 12 Distributor Plate | 27 Oil Control Ring       |
| 13 "O" Ring          | 28 Drain Manifold         |
| 14 Rear Housing      | 29 Bearing Nut            |
| 15 "O" Ring          | 30 Shaft Housing          |

# BMSY Installation Data

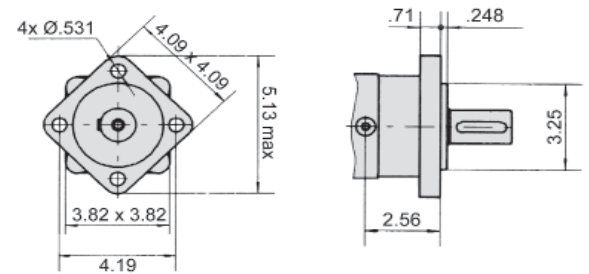
## S Ports - 7/8"-14 SAE



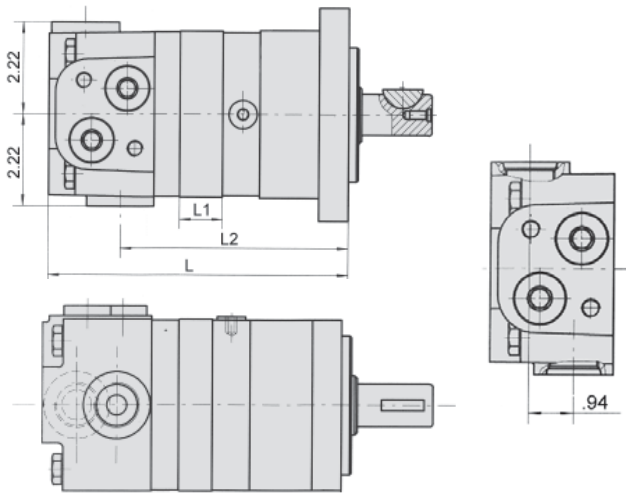
## E2 - SAE "A" 2-Bolt



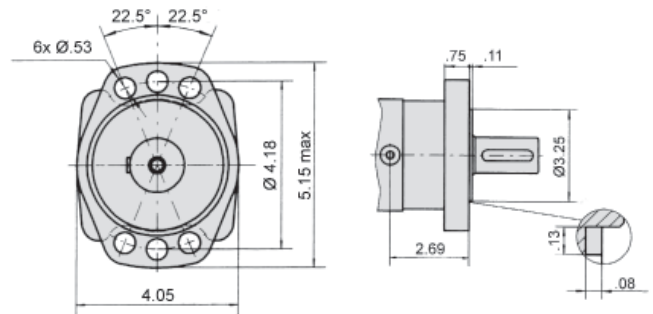
## E4 - SAE "A" 4-Bolt



## ED Ports (180° Apart) - 1 1/16"-12 SAE



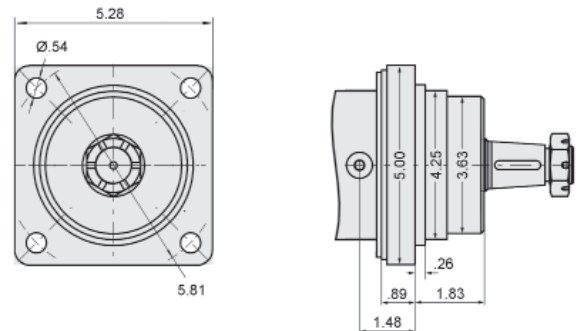
## F6 - 6-Bolt Magneto



**NEW!**

## WE - Wheel Mount (4-bolt)

Drop-in replacement for Char-Lynn 105-XXXX series.

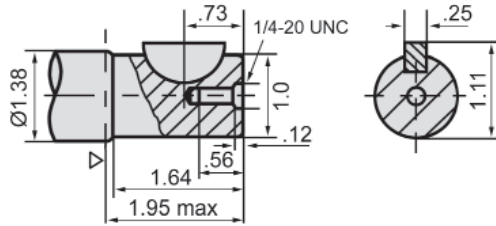


| MODEL    | L     | L1    | L2    |
|----------|-------|-------|-------|
| BMSY 80  | 6.70" | 0.63" | 4.98" |
| BMSY 100 | 6.85" | 0.79" | 5.14" |
| BMSY 125 | 7.04" | 0.98" | 5.33" |
| BMSY 160 | 7.22" | 1.24" | 5.49" |
| BMSY 200 | 7.57" | 1.57" | 5.83" |
| BMSY 250 | 7.95" | 1.97" | 6.22" |
| BMSY 315 | 8.43" | 2.44" | 6.69" |
| BMSY 400 | 8.82" | 2.71" | 7.08" |
| BMSY 475 | 9.37" | 3.26" | 7.63" |

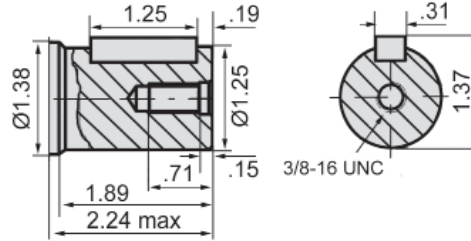
| Port     | SAE Sizes     | NPT Sizes     |
|----------|---------------|---------------|
| P (A, B) | 7/8 - 14 SAE  | 1/2 - 14 NPTF |
| T        | 7/16 - 20 SAE | 7/16 - 20 SAE |

# BMSY Drive Shaft Data

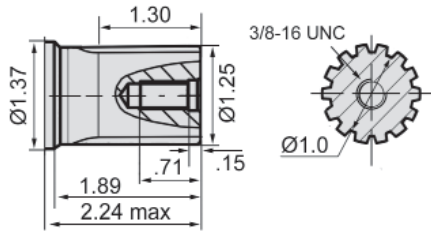
## K - 1" Woodruff Key



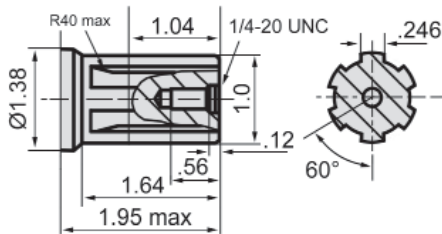
## G - 1 1/4" Parallel Key



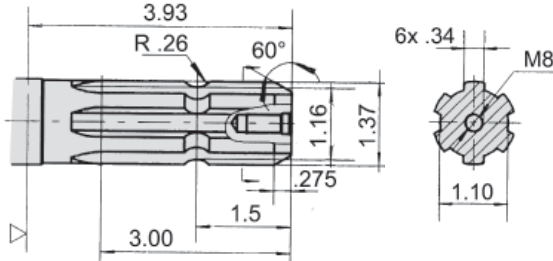
## F - 1 1/4" - 14 DP Spline



## S1 - SAE 6B Spline

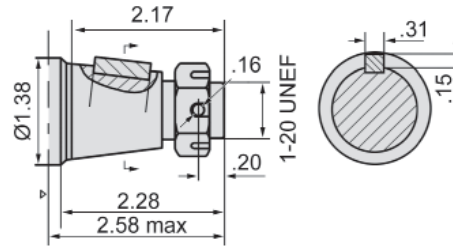


## SL - 6 Spline PTO

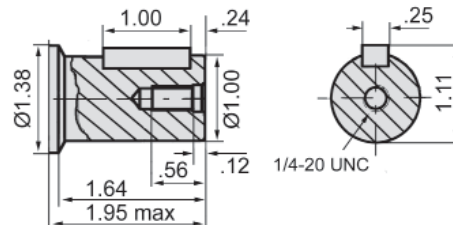


The following shafts are only available with the Wheel Mount (WE). Wheel Mount (WE) can only be used with these shafts.

## T4 - 1 1/4" Tapered



## D - 1" Parallel Key



Ordering Example:

| Model       | Frame Size   | Flange    | Drive Shaft | Ports      | Options  |
|-------------|--------------|-----------|-------------|------------|----------|
| <b>BMSY</b> | <b>- 200</b> | <b>E2</b> | <b>- K</b>  | <b>- S</b> | <b>-</b> |

| Model | Frame Size   | Mounting Flange**  | Drive Shaft**   | Port Size   | Options           |
|-------|--|--|---|---|-------------------|
| BMSY  | 80 (4.92)<br>100 (6.15)<br>125 (7.63)<br>160 (9.59)<br>200 (11.84)<br>250 (15.40)<br>315 (19.20)<br>400 (24.04)<br>475 (28.98) | E2 = SAE "A" 2 Bolt<br>E4 = SAE "A" 4-Bolt<br>F6 = Magneto<br>WE = Wheel Mount | K = 1" Woodruff Key<br>D = 1" Parallel Key<br>G = 1 1/4" Parallel Key<br>S1 = SAE 6B Spline<br>T4 = 1 1/4" Tapered<br>F = 1 1/4" - 14 DP Spline<br>SL* = 6 Spline PTO | S = 7/8" - 14 SAE<br>ED = Side Ports<br>1 1/16-12 SAE | F* = Free Running |

\* Special order

\*\* Additional flange and drive shaft options available please consult factory.

Seal kits for BMSY Motors are available for purchase. Order seal kit using item description: "BMSY Seal Kit".

## BMSY Flow Data

| <b>BMSY 80</b>                   |                | <b>4.92 in<sup>3</sup>/rev (80.6 cm<sup>3</sup>/rev)</b> |             |             |             |             | <i>Max Cont.</i> | <i>Max Int.</i> |  |
|----------------------------------|----------------|--|-------------|-------------|-------------|-------------|------------------|-----------------|--|
| <b>Pressure (psi →)</b>          | <b>515</b>     | <b>1030</b>  | <b>1546</b> | <b>2060</b> | <b>2576</b> | <b>2973</b> | <b>3308</b>      |                 |  |
| <b>FLOW</b>                      | <b>(gpm ↓)</b> | <b>Torque (in·lbf) Speed Specification</b>               |             |             |             |             |                  |                 |  |
|                                  | <b>3.96</b>    | 310  | 708         | 1062        | 1398        | 1726        | 2017             | 2204            |  |
|                                  |                | 180 rpm  | 174 rpm     | 168 rpm     | 164 rpm     | 158 rpm     | 151 rpm          | 143 rpm         |  |
|                                  | <b>7.93</b>    | 310  | 708         | 1062        | 1398        | 1726        | 2053             | 2301            |  |
|                                  |                | 362 rpm  | 352 rpm     | 346 rpm     | 338 rpm     | 330 rpm     | 322 rpm          | 310 rpm         |  |
|                                  | <b>10.57</b>   | 310  | 699         | 1053        | 1372        | 1708        | 2009             | 2213            |  |
|                                  |                | 487 rpm  | 480 rpm     | 468 rpm     | 457 rpm     | 446 rpm     | 438 rpm          | 425 rpm         |  |
|                                  | <b>13.21</b>   | 266  | 681         | 1035        | 1354        | 1699        | 1982             | 2195            |  |
|                                  |                | 612 rpm  | 603 rpm     | 592 rpm     | 581 rpm     | 572 rpm     | 558 rpm          | 542 rpm         |  |
|                                  | <b>15.85</b>   | 248  | 681         | 1035        | 1354        | 1699        | 1982             | 2150            |  |
| 735 rpm                          |                | 726 rpm  | 718 rpm     | 703 rpm     | 687 rpm     | 673 rpm     | 646 rpm          |                 |  |
| <b>17.17</b><br><i>Max Cont.</i> | 230            | 664  | 1026        | 1336        | 1663        | 1920        | 2088             |                 |  |
|                                  | 794 rpm        | 786 rpm  | 773 rpm     | 760 rpm     | 744 rpm     | 722 rpm     | 706 rpm          |                 |  |
| <b>21.13</b><br><i>Max Int.</i>  | 217            | 637  | 964         | 1256        | 1557        | 1823        | 2009             |                 |  |
|                                  | 981 rpm        | 968 rpm  | 955 rpm     | 925 rpm     | 893 rpm     | 870 rpm     | 832 rpm          |                 |  |

| <b>BMSY 100</b>                  |                | <b>6.15 in<sup>3</sup>/rev (100.8 cm<sup>3</sup>/rev)</b> |             |             |             |             | <i>Max Cont.</i> | <i>Max Int.</i> |  |
|----------------------------------|----------------|---|-------------|-------------|-------------|-------------|------------------|-----------------|--|
| <b>Pressure (psi →)</b>          | <b>515</b>     | <b>1030</b>   | <b>1546</b> | <b>2060</b> | <b>2576</b> | <b>2973</b> | <b>3308</b>      |                 |  |
| <b>FLOW</b>                      | <b>(gpm ↓)</b> | <b>Torque (in·lbf) Speed Specification</b>                |             |             |             |             |                  |                 |  |
|                                  | <b>3.96</b>    | 425   | 841         | 1328        | 1770        | 2213        | 2495             | 2744            |  |
|                                  |                | 146 rpm   | 144 rpm     | 139 rpm     | 135 rpm     | 130 rpm     | 120 rpm          | 105 rpm         |  |
|                                  | <b>7.93</b>    | 398   | 832         | 1292        | 1752        | 2213        | 2566             | 2805            |  |
|                                  |                | 291 rpm   | 289 rpm     | 278 rpm     | 274 rpm     | 269 rpm     | 258 rpm          | 242 rpm         |  |
|                                  | <b>10.57</b>   | 381   | 788         | 1492        | 1735        | 2195        | 2549             | 2797            |  |
|                                  |                | 387 rpm   | 384 rpm     | 374 rpm     | 359 rpm     | 350 rpm     | 335 rpm          | 320 rpm         |  |
|                                  | <b>13.21</b>   | 354   | 779         | 1195        | 1717        | 2186        | 2531             | 2788            |  |
|                                  |                | 486 rpm   | 483 rpm     | 473 rpm     | 462 rpm     | 450 rpm     | 430 rpm          | 420 rpm         |  |
|                                  | <b>15.85</b>   | 327   | 779         | 1168        | 1657        | 2159        | 2504             | 2761            |  |
| 588 rpm                          |                | 584 rpm   | 574 rpm     | 562 rpm     | 550 rpm     | 538 rpm     | 520 rpm          |                 |  |
| <b>19.81</b><br><i>Max Cont.</i> | 310            | 708   | 1151        | 1593        | 2124        | 2469        | 2744             |                 |  |
|                                  | 740 rpm        | 735 rpm   | 720 rpm     | 705 rpm     | 696 rpm     | 676 rpm     | 653 rpm          |                 |  |
| <b>23.77</b><br><i>Max Int.</i>  | 266            | 664   | 1097        | 1505        | 2089        | 2398        | 2682             |                 |  |
|                                  | 850 rpm        | 840 rpm   | 810 rpm     | 787 rpm     | 770 rpm     | 750 rpm     | 747 rpm          |                 |  |

| <b>BMSY 125</b>                  |                | <b>7.63 in<sup>3</sup>/rev (125 cm<sup>3</sup>/rev)</b> |             |             |             |             | <i>Max Cont.</i> | <i>Max Int.</i> |  |
|----------------------------------|----------------|---|-------------|-------------|-------------|-------------|------------------|-----------------|--|
| <b>Pressure (psi →)</b>          | <b>515</b>     | <b>1030</b>   | <b>1546</b> | <b>2060</b> | <b>2576</b> | <b>2973</b> | <b>3308</b>      |                 |  |
| <b>FLOW</b>                      | <b>(gpm ↓)</b> | <b>Torque (in·lbf) Speed Specification</b>              |             |             |             |             |                  |                 |  |
|                                  | <b>3.96</b>    | 487   | 1062        | 1558        | 2168        | 2735        | 3053             | 3319            |  |
|                                  |                | 115 rpm   | 113 rpm     | 110 rpm     | 104 rpm     | 98 rpm      | 90 rpm           | 84 rpm          |  |
|                                  | <b>7.93</b>    | 487   | 1062        | 1549        | 2213        | 2787        | 3221             | 3575            |  |
|                                  |                | 231 rpm   | 228 rpm     | 223 rpm     | 214 rpm     | 202 rpm     | 188 rpm          | 172 rpm         |  |
|                                  | <b>10.57</b>   | 469   | 1044        | 1575        | 2213        | 2787        | 3221             | 3566            |  |
|                                  |                | 312 rpm   | 209 rpm     | 290 rpm     | 289 rpm     | 278 rpm     | 262 rpm          | 235 rpm         |  |
|                                  | <b>13.21</b>   | 443   | 1020        | 1558        | 2195        | 2787        | 3203             | 3513            |  |
|                                  |                | 391 rpm   | 386 rpm     | 378 rpm     | 365 rpm     | 352 rpm     | 339 rpm          | 308 rpm         |  |
|                                  | <b>15.85</b>   | 398   | 1000        | 1513        | 2133        | 2726        | 3168             | 3513            |  |
| 469 rpm                          |                | 461 rpm   | 450 rpm     | 437 rpm     | 425 rpm     | 400 rpm     | 372 rpm          |                 |  |
| <b>19.81</b><br><i>Max Cont.</i> | 398            | 974   | 1478        | 2724        | 2708        | 3115        | 3442             |                 |  |
|                                  | 588 rpm        | 574 rpm   | 560 rpm     | 544 rpm     | 526 rpm     | 505 rpm     | 481 rpm          |                 |  |
| <b>23.77</b><br><i>Max Int.</i>  | 354            | 938   | 1434        | 2097        | 2664        | 6035        | 3345             |                 |  |
|                                  | 710 rpm        | 696 rpm   | 680 rpm     | 661 rpm     | 646 rpm     | 628 rpm     | 610 rpm          |                 |  |

| <b>BMSY 160</b>                  |                | <b>9.39 in<sup>3</sup>/rev (154 cm<sup>3</sup>/rev)</b> |             |             |             |             | <i>Max Cont.</i> | <i>Max Int.</i> |  |
|----------------------------------|----------------|---|-------------|-------------|-------------|-------------|------------------|-----------------|--|
| <b>Pressure (psi →)</b>          | <b>515</b>     | <b>1030</b>   | <b>1546</b> | <b>2060</b> | <b>2576</b> | <b>3045</b> | <b>3308</b>      |                 |  |
| <b>FLOW</b>                      | <b>(gpm ↓)</b> | <b>Torque (in·lbf) Speed Specification</b>              |             |             |             |             |                  |                 |  |
|                                  | <b>3.96</b>    | 620   | 1257        | 1904        | 2639        | 3295        | 3852             | 4216            |  |
|                                  |                | 93 rpm  | 91 rpm      | 89 rpm      | 85 rpm      | 80 rpm      | 76 rpm           | 58 rpm          |  |
|                                  | <b>7.93</b>    | 646   | 1337        | 1992        | 2763        | 3383        | 4038             | 4357            |  |
|                                  |                | 189 rpm   | 187 rpm     | 181 rpm     | 176 rpm     | 170 rpm     | 162 rpm          | 153 rpm         |  |
|                                  | <b>10.57</b>   | 664   | 1346        | 2019        | 2781        | 3392        | 4021             | 4322            |  |
|                                  |                | 252 rpm   | 250 rpm     | 246 rpm     | 239 rpm     | 234 rpm     | 228 rpm          | 212 rpm         |  |
|                                  | <b>13.21</b>   | 620   | 1310        | 1992        | 2701        | 3294        | 3941             | 4251            |  |
|                                  |                | 313 rpm   | 310 rpm     | 306 rpm     | 298 rpm     | 293 rpm     | 285 rpm          | 272 rpm         |  |
|                                  | <b>15.85</b>   | 575   | 1266        | 1930        | 2621        | 3277        | 3914             | 4251            |  |
| 378 rpm                          |                | 376 rpm   | 370 rpm     | 362 rpm     | 353 rpm     | 346 rpm     | 332 rpm          |                 |  |
| <b>19.81</b><br><i>Max Cont.</i> | 549            | 1239  | 1868        | 2577        | 3232        | 3888        | 4207             |                 |  |
|                                  | 475 rpm        | 469 rpm   | 461 rpm     | 450 rpm     | 441 rpm     | 432 rpm     | 414 rpm          |                 |  |
| <b>23.77</b><br><i>Max Int.</i>  | 522            | 1160  | 1789        | 2533        | 3159        | 3764        | 4074             |                 |  |
|                                  | 567 rpm        | 561 rpm   | 554 rpm     | 543 rpm     | 532 rpm     | 520 rpm     | 509 rpm          |                 |  |

| <b>BMSY 200</b>                  |                | <b>11.8 in<sup>3</sup>/rev (194 cm<sup>3</sup>/rev)</b> |             |             |             |             | <i>Max Cont.</i> | <i>Max Int.</i> |  |
|----------------------------------|----------------|---|-------------|-------------|-------------|-------------|------------------|-----------------|--|
| <b>Pressure (psi →)</b>          | <b>515</b>     | <b>1030</b>   | <b>1546</b> | <b>2060</b> | <b>2576</b> | <b>3045</b> | <b>3308</b>      |                 |  |
| <b>FLOW</b>                      | <b>(gpm ↓)</b> | <b>Torque (in·lbf) Speed Specification</b>              |             |             |             |             |                  |                 |  |
|                                  | <b>3.96</b>    | 771   | 1585        | 2737        | 3286        | 4171        | 4977             | 5403            |  |
|                                  |                | 74 rpm  | 73 rpm      | 71 rpm      | 68 rpm      | 64 rpm      | 60 rpm           | 48 rpm          |  |
|                                  | <b>7.93</b>    | 806   | 1682        | 2550        | 3418        | 4331        | 5066             | 5473            |  |
|                                  |                | 150 rpm   | 148 rpm     | 143 rpm     | 140 rpm     | 134 rpm     | 128 rpm          | 119 rpm         |  |
|                                  | <b>10.57</b>   | 832   | 1709        | 2621        | 3489        | 4410        | 5172             | 5712            |  |
|                                  |                | 198 rpm   | 195 rpm     | 192 rpm     | 188 rpm     | 183 rpm     | 178 rpm          | 167 rpm         |  |
|                                  | <b>13.21</b>   | 797   | 1691        | 2586        | 3445        | 4366        | 5137             | 5615            |  |
|                                  |                | 248 rpm   | 246 rpm     | 241 rpm     | 236 rpm     | 230 rpm     | 223 rpm          | 212 rpm         |  |
|                                  | <b>15.85</b>   | 752   | 1638        | 2471        | 3383        | 4277        | 5092             | 5509            |  |
| 300 rpm                          |                | 295 rpm   | 288 rpm     | 281 rpm     | 273 rpm     | 263 rpm     | 251 rpm          |                 |  |
| <b>19.81</b><br><i>Max Cont.</i> | 690            | 1558  | 2400        | 3277        | 4180        | 4968        | 5402             |                 |  |
|                                  | 374 rpm        | 370 rpm   | 364 rpm     | 360 rpm     | 352 rpm     | 340 rpm     | 331 rpm          |                 |  |
| <b>23.77</b><br><i>Max Int.</i>  | 602            | 1443  | 2347        | 3197        | 4038        | 4827        | 5305             |                 |  |
|                                  | 443 rpm        | 440 rpm   | 435 rpm     | 428 rpm     | 424 rpm     | 413 rpm     | 400 rpm          |                 |  |

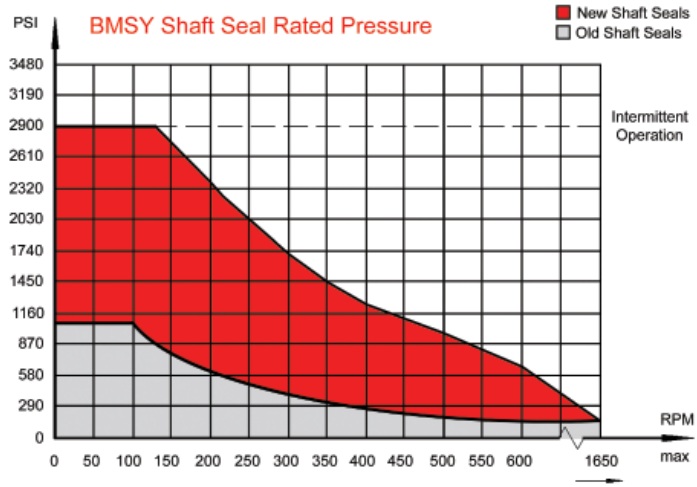
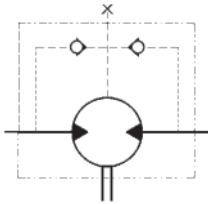
| <b>BMSY 250</b>                  |                | <b>14.8 in<sup>3</sup>/rev (243 cm<sup>3</sup>/rev)</b> |             |             |             |             | <i>Max Cont.</i> | <i>Max Int.</i> |  |
|----------------------------------|----------------|---|-------------|-------------|-------------|-------------|------------------|-----------------|--|
| <b>Pressure (psi →)</b>          | <b>515</b>     | <b>1030</b>   | <b>1546</b> | <b>2060</b> | <b>2576</b> | <b>2900</b> | <b>3308</b>      |                 |  |
| <b>FLOW</b>                      | <b>(gpm ↓)</b> | <b>Torque (in·lbf) Speed Specification</b>              |             |             |             |             |                  |                 |  |
|                                  | <b>3.96</b>    | 974   | 2045        | 3108        | 4091        | 5181        | 6031             | 6890            |  |
|                                  |                | 59 rpm  | 58 rpm      | 56 rpm      | 53 rpm      | 50 rpm      | 46 rpm           | 35 rpm          |  |
|                                  | <b>7.93</b>    | 1027  | 2090        | 3179        | 4207        | 5287        | 6199             | 6997            |  |
|                                  |                | 119 rpm   | 117 rpm     | 114 rpm     | 108 rpm     | 102 rpm     | 92 rpm           | 80 rpm          |  |
|                                  | <b>10.57</b>   | 1045  | 2134        | 3215        | 4251        | 5305        | 6253             | 7050            |  |
|                                  |                | 162 rpm   | 159 rpm     | 156 rpm     | 150 rpm     | 143 rpm     | 134 rpm          | 121 rpm         |  |
|                                  | <b>13.21</b>   | 983   | 2072        | 3117        | 4180        | 5234        | 6137             | 6979            |  |
|                                  |                | 203 rpm   | 201 rpm     | 197 rpm     | 191 rpm     | 182 rpm     | 173 rpm          | 158 rpm         |  |
|                                  | <b>15.85</b>   | 929   | 1947        | 3055        | 4091        | 5154        | 6067             | 6837            |  |
| 244 rpm                          |                | 242 rpm   | 237 rpm     | 230 rpm     | 220 rpm     | 208 rpm     | 194 rpm          |                 |  |
| <b>19.81</b><br><i>Max Cont.</i> | 841            | 1895  | 3011        | 4021        | 5048        | 5934        | 6731             |                 |  |
|                                  | 303 rpm        | 299 rpm   | 294 rpm     | 285 rpm     | 272 rpm     | 260 rpm     | 244 rpm          |                 |  |
| <b>23.77</b><br><i>Max Int.</i>  | 797            | 1851  | 2967        | 3959        | 4951        | 5819        | 6633             |                 |  |
|                                  | 363 rpm        | 359 rpm   | 354 rpm     | 348 rpm     | 340 rpm     | 328 rpm     | 303 rpm          |                 |  |

| <b>BMSY 315</b>                  |                | <b>18.9 in<sup>3</sup>/rev (311 cm<sup>3</sup>/rev)</b> |             |             |             |             | <i>Max Cont.</i> | <i>Max Int.</i> |  |
|----------------------------------|----------------|---|-------------|-------------|-------------|-------------|------------------|-----------------|--|
| <b>Pressure (psi →)</b>          | <b>515</b>     | <b>1030</b>   | <b>1546</b> | <b>2060</b> | <b>2538</b> | <b>2900</b> | <b>3308</b>      |                 |  |
| <b>FLOW</b>                      | <b>(gpm ↓)</b> | <b>Torque (in·lbf) Speed Specification</b>              |             |             |             |             |                  |                 |  |
|                                  | <b>3.96</b>    | 1310  | 2692        | 4038        | 5429        | 6749        | 7785             | 8662            |  |
|                                  |                | 48 rpm  | 47 rpm      | 45 rpm      | 43 rpm      | 41 rpm      | 39 rpm           | 27 rpm          |  |
|                                  | <b>7.93</b>    | 1372  | 2781        | 4118        | 5624        | 6890        | 7829             | 8750            |  |
|                                  |                | 95 rpm  | 93 rpm      | 91 rpm      | 89 rpm      | 86 rpm      | 82 rpm           | 67 rpm          |  |
|                                  | <b>10.57</b>   | 1417  | 2843        | 4242        | 5757        | 7050        | 8024             | 8830            |  |
|                                  |                | 127 rpm   | 125 rpm     | 121 rpm     | 117 rpm     | 115 rpm     | 109 rpm          | 91 rpm          |  |
|                                  | <b>13.21</b>   | 1372  | 2781        | 4118        | 5650        | 6908        | 7847             | 8750            |  |
|                                  |                | 159 rpm   | 157 rpm     | 153 rpm     | 149 rpm     | 145 rpm     | 142 rpm          | 128 rpm         |  |
|                                  | <b>15.85</b>   | 1337  | 2710        | 4012        | 5491        | 6695        | 7847             | 8644            |  |
| 187 rpm                          |                | 185 rpm   | 181 rpm     | 176 rpm     | 169 rpm     | 157 rpm     | 143 rpm          |                 |  |
| <b>19.81</b><br><i>Max Cont.</i> | 1293           | 2657  | 3941        | 5429        | 6681        | 7743        | 8549             |                 |  |
|                                  | 238 rpm        | 236 rpm   | 232 rpm     | 227 rpm     | 224 rpm     | 220 rpm     | 196 rpm          |                 |  |
| <b>23.77</b><br><i>Max Int.</i>  | 1194           | 2513  | 3858        | 5318        | 6549        | 7637        | 8425             |                 |  |
|                                  | 286 rpm        | 283 rpm   | 278 rpm     | 272 rpm     | 265 rpm     | 257 rpm     | 232 rpm          |                 |  |

| <b>BMSY 400</b>                  |                | <b>24.04 in<sup>3</sup>/rev (394 cm<sup>3</sup>/rev)</b> |             |             |             |             | <i>Max Cont.</i> | <i>Max Int.</i> |
|----------------------------------|----------------|--|-------------|-------------|-------------|-------------|------------------|-----------------|
| <b>Pressure (psi →)</b>          | <b>515</b>     | <b>1030</b>  | <b>1546</b> | <b>2060</b> | <b>2354</b> | <b>2576</b> |                  |                 |
| <b>FLOW</b>                      | <b>(gpm ↓)</b> | <b>Torque (in·lbf) Speed Specification</b>               |             |             |             |             |                  |                 |
|                                  | <b>3.96</b>    | 1646   | 3354        | 5115        | 6894        | 7930        | 8726             |                 |
|                                  |                | 37 rpm   | 36 rpm      | 35 rpm      | 33 rpm      | 31 rpm      | 29 rpm           |                 |
|                                  | <b>7.93</b>    | 1681   | 3433        | 5221        | 7000        | 8009        | 8770             |                 |
|                                  |                | 75 rpm   | 73 rpm      | 71 rpm      | 68 rpm      | 65 rpm      | 61 rpm           |                 |
|                                  | <b>10.57</b>   | 1725   | 3486        | 5035        | 7053        | 8071        | 8832             |                 |
|                                  |                | 99 rpm   | 97 rpm      | 95 rpm      | 93 rpm      | 90 rpm      | 85 rpm           |                 |
|                                  | <b>13.21</b>   | 1690   | 3433        | 5194        | 6947        | 8000        | 8699             |                 |
|                                  |                | 125 rpm  | 123 rpm     | 118 rpm     | 114 rpm     | 109 rpm     | 102 rpm          |                 |
|                                  | <b>15.85</b>   | 1646   | 3433        | 5194        | 6947        | 8000        | 8699             |                 |
| 149 rpm                          |                | 146 rpm  | 142 rpm     | 137 rpm     | 131 rpm     | 122 rpm     |                  |                 |
| <b>19.81</b><br><i>Max Cont.</i> | 1601           | 3292   | 5097        | 6814        | 7885        | 8611        |                  |                 |
|                                  | 187 rpm        | 183 rpm  | 177 rpm     | 171 rpm     | 164 rpm     | 153 rpm     |                  |                 |
| <b>23.77</b><br><i>Max Int.</i>  | 1557           | 3247   | 5053        | 6779        | 7814        | 8540        |                  |                 |
|                                  | 226 rpm        | 221 rpm  | 214 rpm     | 208 rpm     | 199 rpm     | 183 rpm     |                  |                 |

| <b>BMSY 475</b>                  |                | <b>28.9 in<sup>3</sup>/rev (475 cm<sup>3</sup>/rev)</b> |             |             |             | <i>Max Cont.</i> | <i>Max Int.</i> |  |
|----------------------------------|----------------|---|-------------|-------------|-------------|------------------|-----------------|--|
| <b>Pressure (psi →)</b>          | <b>515</b>     | <b>1030</b>   | <b>1546</b> | <b>2060</b> | <b>2207</b> |                  |                 |  |
| <b>FLOW</b>                      | <b>(gpm ↓)</b> | <b>Torque (in·lbf) Speed Specification</b>              |             |             |             |                  |                 |  |
|                                  | <b>3.96</b>    | 1929  | 3885        | 5849        | 7894        | 8805             |                 |  |
|                                  |                | 30 rpm  | 29 rpm      | 28 rpm      | 27 rpm      | 25 rpm           |                 |  |
|                                  | <b>7.93</b>    | 1973  | 3982        | 5982        | 8053        | 8867             |                 |  |
|                                  |                | 61 rpm  | 60 rpm      | 58 rpm      | 56 rpm      | 53 rpm           |                 |  |
|                                  | <b>10.57</b>   | 2017  | 4079        | 6097        | 8203        | 9000             |                 |  |
|                                  |                | 82 rpm  | 80 rpm      | 77 rpm      | 74 rpm      | 68 rpm           |                 |  |
|                                  | <b>13.21</b>   | 1982  | 4035        | 6035        | 8142        | 8920             |                 |  |
|                                  |                | 103 rpm   | 101 rpm     | 97 rpm      | 92 rpm      | 86 rpm           |                 |  |
|                                  | <b>15.85</b>   | 1947  | 3991        | 5991        | 8080        | 8832             |                 |  |
| 123 rpm                          |                | 121 rpm   | 118 rpm     | 112 rpm     | 105 rpm     |                  |                 |  |
| <b>19.81</b><br><i>Max Cont.</i> | 1876           | 3920  | 5876        | 7973        | 8673        |                  |                 |  |
|                                  | 155 rpm        | 153 rpm   | 147 rpm     | 140 rpm     | 132 rpm     |                  |                 |  |
| <b>23.77</b><br><i>Max Int.</i>  | 1734           | 3725  | 5690        | 7761        | 8487        |                  |                 |  |
|                                  | 186 rpm        | 184 rpm   | 178 rpm     | 170 rpm     | 157 rpm     |                  |                 |  |

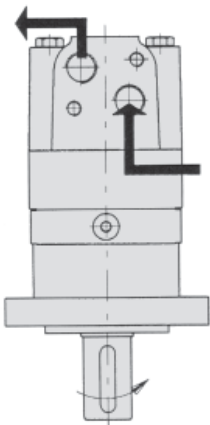
**Shaft Seal Rated Pressure**



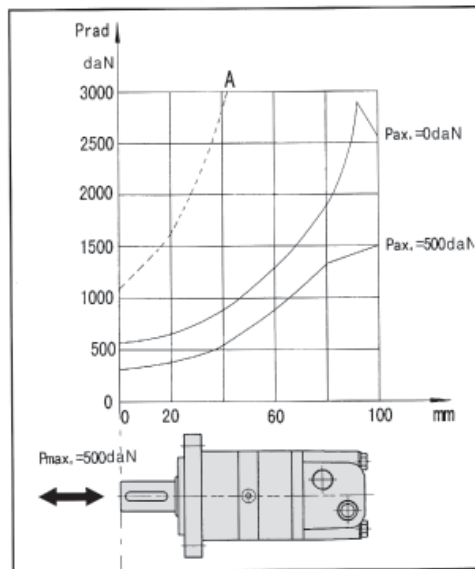
**Case Drain**

In applications without a motor drain line, the pressure exerted on the shaft seal is marginally in excess of the return line pressure. When the drain line is used, the pressure exerted on the shaft seal is equal to the return line pressure.

**Shaft Rotation Direction**

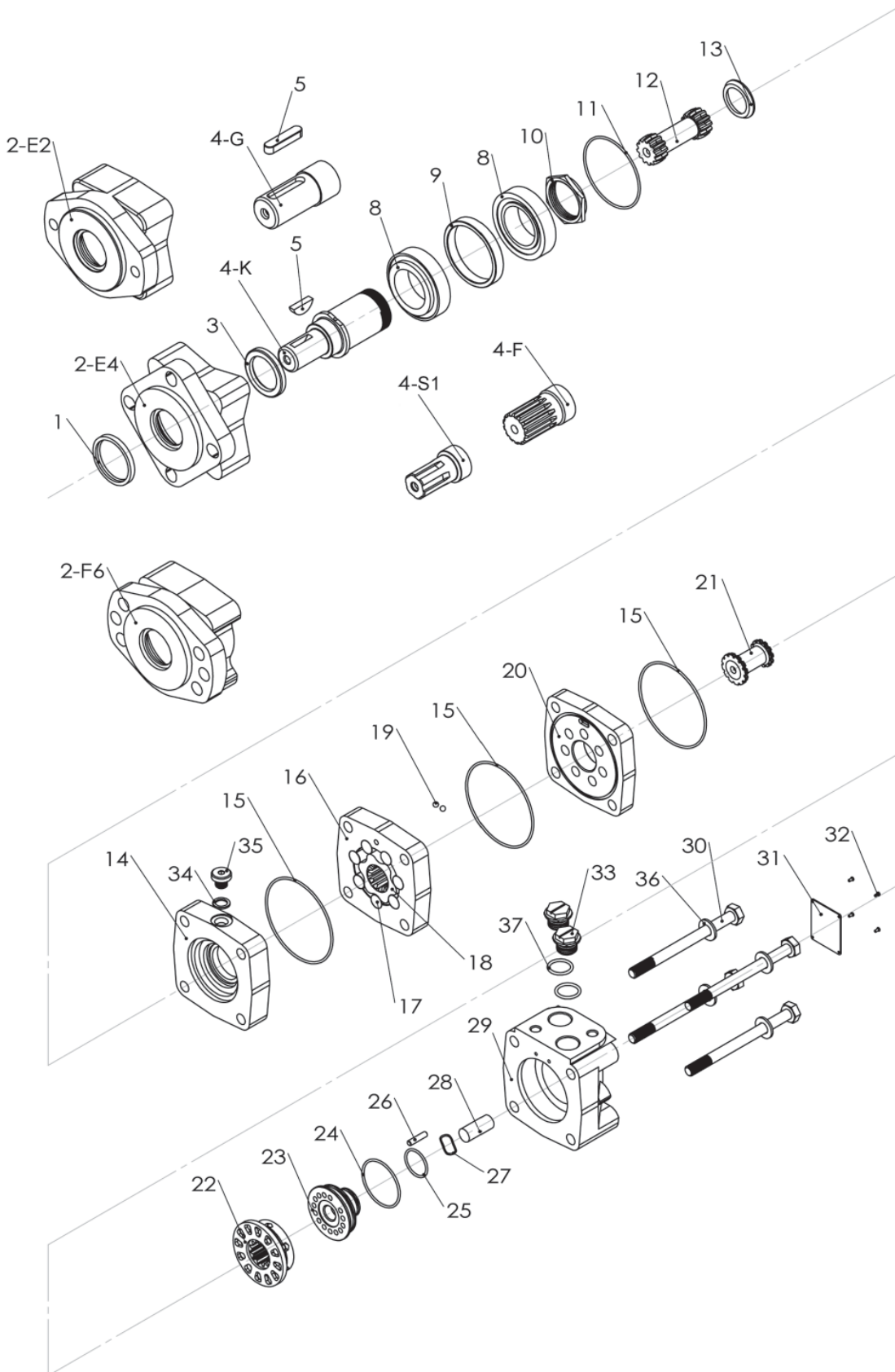


Axial and Radial forces



The output shaft runs tapered bearings that permit high axial and radial forces, Curve "A" shows max radial shaft load, Any shaft loads exceeding the values quoted in the curve will involve risk of breakage. The two other curves apply to a B10 bearing life of 3000 hours at 200 rpm.

# BMSY Motor - Parts Assembly Diagram





## BMSY Motor - Parts Listing

| #  | Part Description   | Qty per Motor |
|----|--|---------------|
| 1  | Dust Seal  | 1             |
| 2  | Housing<br>E2: SAE "A" 2-Bolt<br>E4: SAE "A" 4-Bolt<br>F6: Magneto<br>WE: Wheel Mount  | 1             |
| 3  | Shaft Seal   | 1             |
| 4  | Shaft<br>K: 1" Woodruff Key<br>G: 1 1/4" Parallel Key<br>S1: SAE 6B Spline<br>F: 1 1/4" 14-tooth DP Spline<br>SL: 6 Spline PTO | 1             |
| 5  | Key  | 0-1           |
| 8  | Needle Bearing   | 2             |
| 9  | Spacer Bushing   | 1             |
| 10 | Lock Nut   | 1             |
| 11 | "O" Ring   | 1             |
| 12 | Drive Link   | 1             |
| 13 | Butterfly Washer   | 1             |
| 14 | Intermediate Plate   | 1             |
| 15 | "O" Ring   | 2             |
| 16 | Stator   | 1             |
| 17 | Roller   | 1             |
| 18 | Rotor  | 1             |
| 19 | Ball   | 2             |
| 20 | Balance Plate  | 1             |
| 21 | Coupling   | 1             |
| 22 | Distributor Plate  | 1             |
| 23 | Channel Plate  | 1             |
| 24 | "O" Ring   | 1             |
| 25 | "O" Ring   | 1             |
| 26 | Pin  | 1             |
| 27 | Spring   | 1             |
| 28 | Spacer   | 1             |
| 29 | End Cover  | 1             |
| 30 | Screw  | 4             |
| 31 | Name Plate   | 1             |
| 32 | Rivet  | 4             |
| 33 | Plug   | 2             |
| 34 | Washer   | 1             |
| 35 | Drain Plug   | 1             |
| 36 | Washer   | 4             |

## Seal Kit Contents

| #  | Part Description | Qty per Motor |
|----|------------------|---------------|
| 1  | Dust Seal        | 1             |
| 3  | Shaft Seal       | 1             |
| 11 | "O" Ring         | 1             |
| 15 | "O" Ring         | 3             |
| 24 | "O" Ring         | 1             |
| 25 | "O" Ring         | 1             |
| 34 | "O" Ring         | 2             |

## Tightening Torques

|                  | Tightening (ft. lbs) |
|------------------|----------------------|
| Displacement End | 60                   |
| Flange End       | N/A                  |