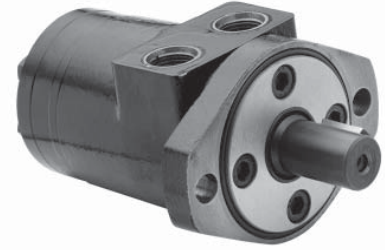


# Hydraulic Motor Model BMPHZ



The BMPHZ Rotortorc™ gear set, shaft distribution flow, hydraulic motor is a compact, highly efficient, low speed-high torque design which can be used in either parallel or series systems. These low weight advanced construction design motors are manufactured in accordance with the requirements of the ISO 9000-2000 quality system.

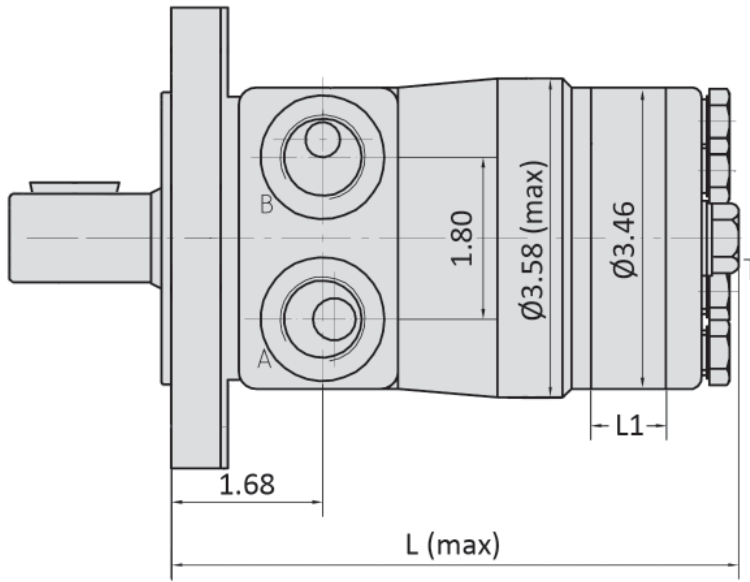


## Technical Specifications

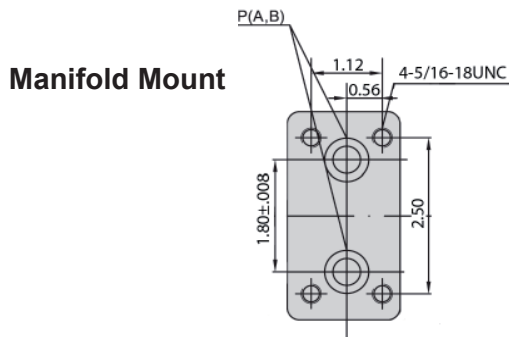
| MODEL   | BMPHZ<br>50    | BMPHZ<br>80    | BMPHZ<br>100   | BMPHZ<br>125    | BMPHZ<br>160    | BMPHZ<br>200     | BMPHZ<br>250     | BMPHZ<br>315     | BMPHZ<br>400     |
|---|----------------|----------------|----------------|-----------------|-----------------|------------------|------------------|------------------|------------------|
| <b>Displacement</b><br><i>in<sup>3</sup>/rev (cm<sup>3</sup>/rev)</i> | 3.23<br>(52.9) | 4.84<br>(79.3) | 5.99<br>(98.2) | 7.37<br>(120.9) | 9.68<br>(158.7) | 11.99<br>(196.4) | 14.76<br>(241.8) | 19.36<br>(317.3) | 23.98<br>(392.9) |
| <b>Max Speed</b><br><i>rpm</i>  | 800            | 770            | 615            | 480             | 385             | 310              | 250              | 195              | 155              |
| <b>Max Torque</b><br><i>in•lb<sub>f</sub></i>                         | Cont           | 690            | 1062           | 1319            | 1593            | 1938             | 2319             | 2655             | 2956             |
|   | Int.           | 920            | 1390           | 1744            | 2106            | 2699             | 3169             | 3691             | 3797             |
| <b>Max Differential</b><br><i>psi</i>                                 | Cont           | 1812           | 1812           | 1812            | 1812            | 1668             | 1595             | 1450             | 1305             |
|   | Int.           | 2393           | 2393           | 2393            | 2393            | 2321             | 2176             | 2030             | 1595             |
| <b>Max Flow</b><br><i>gpm</i>   | 10.57          | 15.85          | 15.85          | 15.85           | 15.85           | 15.85            | 15.85            | 15.85            | 15.85            |
| <b>Weight</b><br><i>lbs</i>   | 12.35          | 12.57          | 13.01          | 13.23           | 13.67           | 14.11            | 14.55            | 15.21            | 16.31            |

Continuous (Cont.) = maximum of continuous operation. Intermittent (Int.) = maximum operating range for 6 seconds per minute

# BMPHZ Installation Data

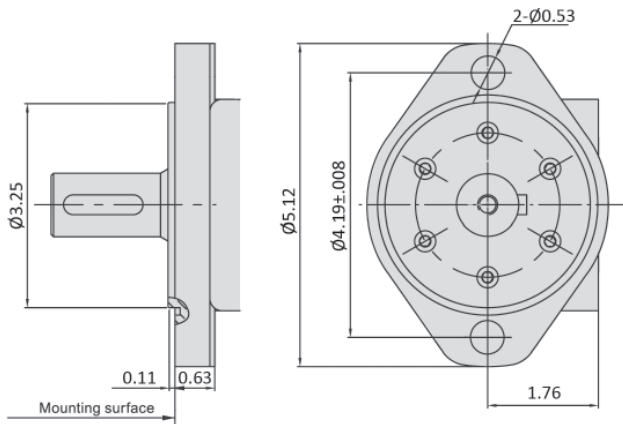


| MODEL     | L    | L1   |
|-----------|------|------|
| BMPHZ 50  | 5.83 | 0.28 |
| BMPHZ 80  | 5.94 | 0.43 |
| BMPHZ 100 | 6.06 | 0.51 |
| BMPHZ 125 | 6.18 | 0.63 |
| BMPHZ 160 | 6.38 | 0.83 |
| BMPHZ 200 | 6.57 | 1.02 |
| BMPHZ 250 | 6.81 | 1.26 |
| BMPHZ 315 | 7.20 | 1.65 |
| BMPHZ 400 | 7.60 | 2.05 |

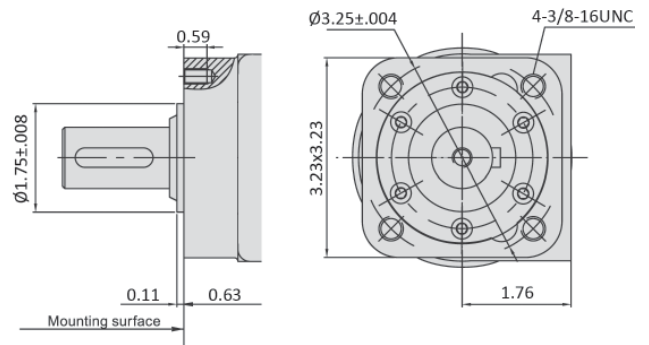


| Ports    | Ports (A, B)                | Drain (T)                 |
|----------|-----------------------------|---------------------------|
| SAE      | 7/8 - 14UNF (depth 0.59)    | 7/16 - 20UNF (depth 0.47) |
| NPT      | NPTF1/2 (depth 0.59)        | 7/16 - 20UNF (depth 0.47) |
| Manifold | $\text{Ø}0.43$ (depth 0.59) | 7/16 - 20UNF (depth 0.47) |

## H2 - SAE "A" 2-Bolt

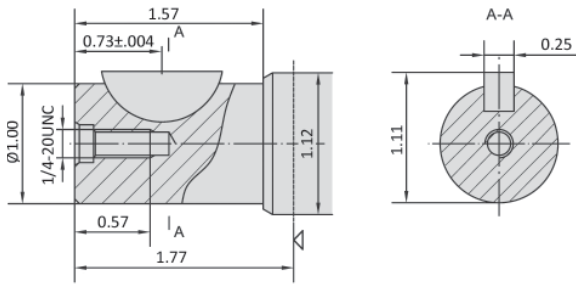


## H4 - 4-Bolt

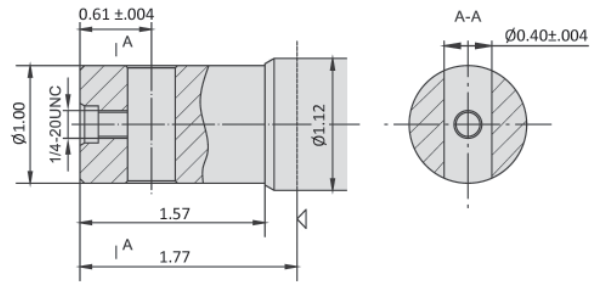


# BMPHZ Drive Shaft Data

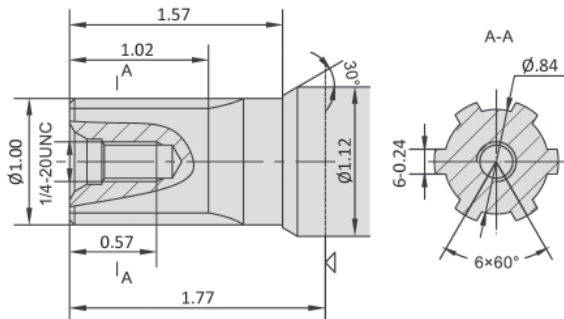
## K - 1" Woodruff Key



## H - 1" Parallel .40 Dia. Cross Hole



## S - SAE 6B Spline



### Ordering Example:

Model **BMPHZ** - Displacement **100** - Flange **H4** - Drive Shaft **K** - Ports **S**

| Model | Frame Size  | Mounting Flange     | Drive Shaft              | Port Size       |
|-------|-------------|---------------------|--------------------------|-----------------|
| BMPHZ | 50 (3.23)   | H2 = SAE "A" 2-Bolt | K = 1" Woodruff Key      | P = 1/2 NPTF    |
|       | 80 (4.84)   | H4 = SAE "A" 4-Bolt | S = SAE 6B Spline        | S = 7/8 -14 SAE |
|       | 100 (5.99)  |                     | H = 1" Parallel .40 dia. | F = Manifold    |
|       | 125 (7.37)  |                     | Cross Hole               |                 |
|       | 160 (9.68)  |                     |                          |                 |
|       | 200 (11.99) |                     |                          |                 |
|       | 250 (14.76) |                     |                          |                 |
|       | 315 (19.36) |                     |                          |                 |
|       | 400 (23.98) |                     |                          |                 |

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

## BMPH Flow Data

| BMPHZ 50          |                    | 3.23 in <sup>3</sup> /rev (52.9 cm <sup>3</sup> /rev) |          |          |                   |          |                  |         |  |
|-------------------|--------------------|---|----------|----------|-------------------|----------|------------------|---------|--|
| Pressure (psi →)  | 435                | 870   | 1160     | 1450     | 1813<br>Max Cont. | 2030     | 2393<br>Max Int. |         |  |
| F<br>L<br>O<br>W  | (gpm ↓)            | Torque (in·lbf) Speed Specification                   |          |          |                   |          |                  |         |  |
|                   | 2.11               | 177   | 363      | 496      | 611               | 743      |                  |         |  |
|                   |                    | 151 rpm   | 134 rpm  | 115 rpm  | 90 rpm            | 56 rpm   |                  |         |  |
|                   | 3.96               | 168   | 354      | 496      | 628               | 726      | 885              | 991     |  |
|                   |                    | 286 rpm   | 274 rpm  | 261 rpm  | 243 rpm           | 204 rpm  | 182 rpm          | 139 rpm |  |
|                   | 5.28               | 159   | 345      | 487      | 620               | 699      | 876              | 1036    |  |
|                   |                    | 382 rpm   | 373 rpm  | 361 rpm  | 348 rpm           | 318 rpm  | 309 rpm          | 287 rpm |  |
|                   | 7.93               | 150   | 336      | 487      | 611               | 690      | 850              | 1027    |  |
|                   |                    | 573 rpm   | 568 rpm  | 558 rpm  | 535 rpm           | 503 rpm  | 488 rpm          | 462 rpm |  |
|                   | 9.25               | 150   | 336      | 478      | 593               | 673      | 832              | 1036    |  |
|                   |                    | 670 rpm   | 661 rpm  | 652 rpm  | 640 rpm           | 606 rpm  | 589 rpm          | 562 rpm |  |
|                   | 10.57<br>Max Cont. | 133   | 319      | 469      | 558               | 628      | 805              | 1009    |  |
| 800 rpm           |                    | 795 rpm   | 791 rpm  | 786 rpm  | 783 rpm           | 780 rpm  | 756 rpm          |         |  |
| 13.21             | 115                | 301   | 460      | 531      | 602               | 770      | 1000             |         |  |
|                   | 926 rpm            | 922 rpm   | 919 rpm  | 915 rpm  | 910 rpm           | 902 rpm  | 900 rpm          |         |  |
| 15.85<br>Max Int. | 89                 | 283   | 416      | 513      | 540               | 717      | 956              |         |  |
|                   | 1150 rpm           | 1143 rpm  | 1126 rpm | 1111 rpm | 1079 rpm          | 1065 rpm | 1043 rpm         |         |  |

| BMPHZ 80           |         | 4.84 in <sup>3</sup> /rev (79.3 cm <sup>3</sup> /rev) |         |         |                   |         |                  |         |
|--------------------|---------|---|---------|---------|-------------------|---------|------------------|---------|
| Pressure (psi →)   | 435     | 870   | 1160    | 1450    | 1813<br>Max Cont. | 2030    | 2393<br>Max Int. |         |
| F<br>L<br>O<br>W   | (gpm ↓) | Torque (in·lbf) Speed Specification                   |         |         |                   |         |                  |         |
|                    | 2.11    | 274   | 531     | 717     | 894               | 1115    |                  |         |
|                    |         | 98 rpm  | 89 rpm  | 76 rpm  | 57 rpm            | 35 rpm  |                  |         |
|                    | 3.96    | 266   | 504     | 717     | 894               | 1106    | 1266             | 1434    |
|                    |         | 186 rpm   | 181 rpm | 170 rpm | 154 rpm           | 132 rpm | 118 rpm          | 86 rpm  |
|                    | 5.28    | 266   | 496     | 708     | 885               | 1089    | 1248             | 1416    |
|                    |         | 251 rpm   | 243 rpm | 236 rpm | 225 rpm           | 207 rpm | 196 rpm          | 178 rpm |
|                    | 7.93    | 257   | 487     | 690     | 876               | 1071    | 1230             | 1407    |
|                    |         | 381 rpm   | 379 rpm | 368 rpm | 355 rpm           | 332 rpm | 316 rpm          | 285 rpm |
|                    | 9.25    | 248   | 478     | 673     | 832               | 1062    | 1221             | 1390    |
|                    |         | 443 rpm   | 435 rpm | 426 rpm | 415 rpm           | 397 rpm | 383 rpm          | 361 rpm |
|                    | 10.57   | 239   | 451     | 637     | 797               | 991     | 1186             | 1372    |
| 570 rpm            |         | 564 rpm   | 554 rpm | 543 rpm | 526 rpm           | 509 rpm | 483 rpm          |         |
| 13.21              | 221     | 443   | 620     | 788     | 956               | 1133    | 1354             |         |
|                    | 696 rpm | 685 rpm   | 672 rpm | 656 rpm | 643 rpm           | 630 rpm | 602 rpm          |         |
| 15.85<br>Max Cont. | 204     | 407   | 602     | 770     | 920               | 1097    | 1292             |         |
|                    | 761 rpm | 753 rpm   | 744 rpm | 736 rpm | 720 rpm           | 706 rpm | 681 rpm          |         |
| 19.81<br>Max Int.  | 159     | 336   | 549     | 726     | 885               | 1071    | 1248             |         |
|                    | 948 rpm | 940 rpm   | 931 rpm | 920 rpm | 906 rpm           | 890 rpm | 871 rpm          |         |

| BMPHZ 100                 |         | 5.99 in <sup>3</sup> /rev (98.2 cm <sup>3</sup> /rev) |         |         |         |                          |         |                         |
|---------------------------|---------|---|---------|---------|---------|--------------------------|---------|-------------------------|
| Pressure (psi →)          |         | 435   | 870     | 1160    | 1450    | 1813<br><i>Max Cont.</i> | 2030    | 2393<br><i>Max Int.</i> |
| <b>FLOW</b>               | (gpm ↓) | <b>Torque (in·lbf) Speed Specification</b>            |         |         |         |                          |         |                         |
|                           | 2.11    | 345   | 655     | 912     | 1133    | 1390                     |         |                         |
|                           |         | 82 rpm  | 76 rpm  | 70 rpm  | 58 rpm  | 37 rpm                   |         |                         |
|                           | 3.96    | 336   | 664     | 920     | 1133    | 1381                     | 1602    | 1797                    |
|                           |         | 153 rpm   | 150 rpm | 146 rpm | 141 rpm | 123 rpm                  | 104 rpm | 82 rpm                  |
|                           | 5.28    | 301   | 628     | 894     | 1106    | 1354                     | 1584    | 1770                    |
|                           |         | 205 rpm   | 202 rpm | 197 rpm | 192 rpm | 179 rpm                  | 169 rpm | 150 rpm                 |
|                           | 7.93    | 274   | 611     | 885     | 1080    | 1336                     | 1567    | 1752                    |
|                           |         | 310 rpm   | 306 rpm | 300 rpm | 292 rpm | 282 rpm                  | 270 rpm | 257 rpm                 |
|                           | 9.25    | 248   | 593     | 841     | 1053    | 1319                     | 1558    | 1744                    |
|                           |         | 362 rpm   | 354 rpm | 345 rpm | 333 rpm | 323 rpm                  | 308 rpm | 296 rpm                 |
|                           | 10.57   | 239   | 566     | 814     | 1018    | 1292                     | 1540    | 1699                    |
|                           |         | 464 rpm   | 460 rpm | 453 rpm | 446 rpm | 436 rpm                  | 421 rpm | 404 rpm                 |
|                           | 13.21   | 204   | 540     | 797     | 1000    | 1248                     | 1505    | 1682                    |
| 568 rpm                   |         | 560 rpm   | 551 rpm | 542 rpm | 532 rpm | 517 rpm                  | 500 rpm |                         |
| 15.85<br><i>Max Cont.</i> | 177     | 504   | 779     | 982     | 1186    | 1478                     | 1629    |                         |
|                           | 615 rpm | 613 rpm   | 603 rpm | 592 rpm | 583 rpm | 574 rpm                  | 563 rpm |                         |
| 19.81<br><i>Max Int.</i>  | 115     | 451   | 708     | 912     | 1151    | 1416                     | 1593    |                         |
|                           | 772 rpm | 765 rpm   | 757 rpm | 747 rpm | 738 rpm | 726 rpm                  | 710 rpm |                         |

| BMPHZ 125                 |         | 7.37 in <sup>3</sup> /rev (120.9 cm <sup>3</sup> /rev) |         |         |         |                          |         |                         |
|---------------------------|---------|--|---------|---------|---------|--------------------------|---------|-------------------------|
| Pressure (psi →)          |         | 435  | 870     | 1160    | 1450    | 1813<br><i>Max Cont.</i> | 2030    | 2393<br><i>Max Int.</i> |
| <b>FLOW</b>               | (gpm ↓) | <b>Torque (in·lbf) Speed Specification</b>             |         |         |         |                          |         |                         |
|                           | 2.11    | 416  | 832     | 1168    | 1434    |                          |         |                         |
|                           |         | 65 rpm   | 62 rpm  | 57 rpm  | 49 rpm  |                          |         |                         |
|                           | 3.96    | 416  | 850     | 1168    | 1425    | 1664                     | 2027    | 2354                    |
|                           |         | 123 rpm  | 118 rpm | 112 rpm | 104 rpm | 92 rpm                   | 76 rpm  | 51 rpm                  |
|                           | 5.28    | 398  | 823     | 1151    | 1425    | 1637                     | 2000    | 2372                    |
|                           |         | 164 rpm  | 160 rpm | 155 rpm | 150 rpm | 140 rpm                  | 131 rpm | 112 rpm                 |
|                           | 7.93    | 381  | 814     | 1133    | 1407    | 1611                     | 1956    | 2337                    |
|                           |         | 246 rpm  | 242 rpm | 237 rpm | 230 rpm | 219 rpm                  | 205 rpm | 192 rpm                 |
|                           | 9.25    | 345  | 779     | 1106    | 1372    | 1593                     | 1938    | 2106                    |
|                           |         | 287 rpm  | 282 rpm | 277 rpm | 272 rpm | 262 rpm                  | 250 rpm | 234 rpm                 |
|                           | 10.57   | 301  | 752     | 1062    | 1345    | 1558                     | 1876    | 2062                    |
|                           |         | 373 rpm  | 365 rpm | 358 rpm | 351 rpm | 343 rpm                  | 330 rpm | 313 rpm                 |
|                           | 13.21   | 266  | 708     | 1044    | 1310    | 1513                     | 1788    | 2027                    |
| 455 rpm                   |         | 449 rpm  | 441 rpm | 434 rpm | 423 rpm | 415 rpm                  | 405 rpm |                         |
| 15.85<br><i>Max Cont.</i> | 230     | 655  | 991     | 1248    | 1452    | 1752                     | 1991    |                         |
|                           | 493 rpm | 485 rpm  | 478 rpm | 471 rpm | 461 rpm | 450 rpm                  | 442 rpm |                         |
| 19.81<br><i>Max Int.</i>  | 133     | 549  | 903     | 1133    | 1416    | 1735                     | 1947    |                         |
|                           | 617 rpm | 608 rpm  | 600 rpm | 588 rpm | 577 rpm | 565 rpm                  | 552 rpm |                         |

| BMPHZ 160                 |         | 9.68 in <sup>3</sup> /rev (158.7 cm <sup>3</sup> /rev) |         |         |         |                          |         |                         |
|---------------------------|---------|--|---------|---------|---------|--------------------------|---------|-------------------------|
| Pressure (psi →)          |         | 435  | 870     | 1160    | 1450    | 1813<br><i>Max Cont.</i> | 2030    | 2320<br><i>Max Int.</i> |
| W O L F                   | (gpm ↓) | Torque (in•lbf) Speed Specification                    |         |         |         |                          |         |                         |
|                           | 2.11    | 513  | 1027    | 1469    | 1841    |                          |         |                         |
|                           |         | 49 rpm   | 48 rpm  | 46 rpm  | 44 rpm  |                          |         |                         |
|                           | 3.96    | 496  | 1027    | 1487    | 1859    | 1991                     | 2549    | 2629                    |
|                           |         | 93 rpm   | 91 rpm  | 88 rpm  | 85 rpm  | 80 rpm                   | 68 rpm  | 48 rpm                  |
|                           | 5.28    | 469  | 991     | 1469    | 1859    | 1974                     | 2514    | 2611                    |
|                           |         | 125 rpm  | 123 rpm | 120 rpm | 117 rpm | 113 rpm                  | 105 rpm | 92 rpm                  |
|                           | 7.93    | 434  | 974     | 1398    | 1770    | 1956                     | 2478    | 2655                    |
|                           |         | 187 rpm  | 184 rpm | 181 rpm | 178 rpm | 176 rpm                  | 168 rpm | 155 rpm                 |
|                           | 9.25    | 398  | 938     | 1381    | 1735    | 1938                     | 2425    | 2699                    |
|                           |         | 220 rpm  | 216 rpm | 213 rpm | 209 rpm | 207 rpm                  | 202 rpm | 192 rpm                 |
|                           | 10.57   | 354  | 867     | 1328    | 1699    | 1921                     | 239     | 2673                    |
|                           |         | 283 rpm  | 280 rpm | 276 rpm | 272 rpm | 269 rpm                  | 260 rpm | 250 rpm                 |
|                           | 14.52   | 319  | 841     | 1275    | 1655    | 1903                     | 2337    | 2655                    |
| 345 rpm                   |         | 342 rpm  | 340 rpm | 336 rpm | 333 rpm | 328 rpm                  | 320 rpm |                         |
| 15.85<br><i>Max Cont.</i> | 257     | 797  | 1239    | 1629    | 1885    | 2301                     | 2638    |                         |
|                           | 377 rpm | 374 rpm  | 371 rpm | 367 rpm | 365 rpm | 359 rpm                  | 353 rpm |                         |
| 18.49<br><i>Max Int.</i>  | 133     | 673  | 1062    | 1487    | 1859    | 2177                     | 2567    |                         |
|                           | 473 rpm | 469 rpm  | 465 rpm | 459 rpm | 456 rpm | 447 rpm                  | 440 rpm |                         |

| BMPHZ 200                 |         | 11.99 in <sup>3</sup> /rev (196.4 cm <sup>3</sup> /rev) |         |         |         |                          |         |                         |
|---------------------------|---------|---|---------|---------|---------|--------------------------|---------|-------------------------|
| Pressure (psi →)          |         | 435   | 870     | 1160    | 1450    | 1595<br><i>Max Cont.</i> | 1885    | 2176<br><i>Max Int.</i> |
| W O L F                   | (gpm ↓) | Torque (in•lbf) Speed Specification                     |         |         |         |                          |         |                         |
|                           | 2.11    | 673   | 1425    | 1806    | 2186    |                          |         |                         |
|                           |         | 39 rpm  | 38 rpm  | 37 rpm  | 34 rpm  |                          |         |                         |
|                           | 3.96    | 664   | 1398    | 1770    | 2168    | 2372                     | 2921    | 3222                    |
|                           |         | 75 rpm  | 74 rpm  | 73 rpm  | 72 rpm  | 70 rpm                   | 69 rpm  | 67 rpm                  |
|                           | 5.28    | 646   | 1363    | 1761    | 2151    | 2354                     | 2903    | 3204                    |
|                           |         | 100 rpm   | 98 rpm  | 97 rpm  | 96 rpm  | 94 rpm                   | 92 rpm  | 90 rpm                  |
|                           | 7.93    | 593   | 1328    | 1744    | 2133    | 2337                     | 2868    | 3186                    |
|                           |         | 150 rpm   | 148 rpm | 146 rpm | 145 rpm | 143 rpm                  | 139 rpm | 135 rpm                 |
|                           | 9.25    | 558   | 1292    | 1682    | 2018    | 2301                     | 2815    | 3169                    |
|                           |         | 176 rpm   | 175 rpm | 173 rpm | 172 rpm | 171 rpm                  | 169 rpm | 168 rpm                 |
|                           | 10.57   | 531   | 1266    | 1655    | 2000    | 2283                     | 2788    | 3115                    |
|                           |         | 226 rpm   | 224 rpm | 222 rpm | 221 rpm | 219 rpm                  | 216 rpm | 211 rpm                 |
|                           | 13.21   | 451   | 1204    | 1567    | 1947    | 2266                     | 2761    | 3027                    |
| 278 rpm                   |         | 273 rpm   | 274 rpm | 273 rpm | 271 rpm | 269 rpm                  | 266 rpm |                         |
| 15.85<br><i>Max Cont.</i> | 566     | 1089  | 1416    | 1841    | 2222    | 2726                     | 2938    |                         |
|                           | 302 rpm | 300 rpm   | 298 rpm | 295 rpm | 292 rpm | 291 rpm                  | 289 rpm |                         |
| 19.81<br><i>Max Int.</i>  | 159     | 814   | 1248    | 1664    | 2195    | 2567                     | 2876    |                         |
|                           | 380 rpm | 376 rpm   | 372 rpm | 369 rpm | 366 rpm | 362 rpm                  | 358 rpm |                         |

| BMPHZ 250                 |         | 14.76 in <sup>3</sup> /rev (241.8 cm <sup>3</sup> /rev) |         |         |                          |         |                         |
|---------------------------|---------|---|---------|---------|--------------------------|---------|-------------------------|
| Pressure (psi →)          |         | 435   | 870     | 1160    | 1450<br><i>Max Cont.</i> | 1813    | 2030<br><i>Max Int.</i> |
| <b>FLOW</b>               | (gpm ↓) | <b>Torque (in·lbf) Speed Specification</b>              |         |         |                          |         |                         |
|                           | 2.11    | 823   | 1646    |         |                          |         |                         |
|                           |         | 32 rpm  | 31 rpm  |         |                          |         |                         |
|                           | 3.96    | 797   | 1682    | 2319    | 2744                     | 3531    | 3806                    |
|                           |         | 61 rpm  | 60 rpm  | 58 rpm  | 55 rpm                   | 52 rpm  | 50 rpm                  |
|                           | 5.28    | 797   | 1637    | 2301    | 2726                     | 3496    | 3744                    |
|                           |         | 83 rpm  | 82 rpm  | 78 rpm  | 77 rpm                   | 71 rpm  | 66 rpm                  |
|                           | 7.93    | 717   | 1558    | 2257    | 2699                     | 3452    | 3717                    |
|                           |         | 124 rpm   | 121 rpm | 120 rpm | 116 rpm                  | 108 rpm | 100 rpm                 |
|                           | 9.25    | 646   | 1522    | 2177    | 2655                     | 3416    | 3691                    |
|                           |         | 144 rpm   | 142 rpm | 140 rpm | 137 rpm                  | 130 rpm | 124 rpm                 |
|                           | 10.57   | 575   | 1434    | 2106    | 2620                     | 3275    | 3647                    |
|                           |         | 186 rpm   | 183 rpm | 179 rpm | 175 rpm                  | 169 rpm | 162 rpm                 |
|                           | 14.52   | 531   | 1381    | 2053    | 2558                     | 3204    | 3629                    |
| 227 rpm                   |         | 224 rpm   | 219 rpm | 214 rpm | 210 rpm                  | 203 rpm |                         |
| 15.85<br><i>Max Cont.</i> | 496     | 1266  | 1956    | 2469    | 3160                     | 3593    |                         |
|                           | 249 rpm | 247 rpm   | 244 rpm | 240 rpm | 234 rpm                  | 228 rpm |                         |
| 19.81<br><i>Max Int.</i>  | 274     | 1106  | 1779    | 2328    | 3018                     | 3416    |                         |
|                           | 310 rpm | 307 rpm   | 303 rpm | 298 rpm | 287 rpm                  | 279 rpm |                         |

| BMPHZ 315                 |         | 19.36 in <sup>3</sup> /rev (317.30 cm <sup>3</sup> /rev) |         |         |                          |         |                         |
|---------------------------|---------|--|---------|---------|--------------------------|---------|-------------------------|
| Pressure (psi →)          |         | 435  | 725     | 1015    | 1305<br><i>Max Cont.</i> | 1450    | 1595<br><i>Max Int.</i> |
| <b>FLOW</b>               | (gpm ↓) | <b>Torque (in·lbf) Speed Specification</b>               |         |         |                          |         |                         |
|                           | 2.11    | 1080   | 1894    |         |                          |         |                         |
|                           |         | 25 rpm   | 23 rpm  |         |                          |         |                         |
|                           | 3.96    | 1036   | 1841    | 2531    | 3195                     | 3540    | 3894                    |
|                           |         | 46 rpm   | 45 rpm  | 44 rpm  | 42 rpm                   | 40 rpm  | 38 rpm                  |
|                           | 5.28    | 956  | 1797    | 2443    | 3151                     | 3461    | 3815                    |
|                           |         | 62 rpm   | 61 rpm  | 60 rpm  | 59 rpm                   | 57 rpm  | 54 rpm                  |
|                           | 7.93    | 885  | 1726    | 2372    | 3027                     | 3416    | 3744                    |
|                           |         | 94 rpm   | 93 rpm  | 92 rpm  | 90 rpm                   | 88 rpm  | 86 rpm                  |
|                           | 9.25    | 850  | 1646    | 2310    | 2992                     | 3363    | 3655                    |
|                           |         | 109 rpm  | 108 rpm | 107 rpm | 106 rpm                  | 104 rpm | 102 rpm                 |
|                           | 10.57   | 779  | 1575    | 2222    | 2947                     | 3275    | 3585                    |
|                           |         | 141 rpm  | 140 rpm | 138 rpm | 137 rpm                  | 135 rpm | 130 rpm                 |
|                           | 14.52   | 673  | 1460    | 2089    | 2832                     | 3186    | 3540                    |
| 180 rpm                   |         | 172 rpm  | 171 rpm | 170 rpm | 168 rpm                  | 166 rpm |                         |
| 15.85<br><i>Max Cont.</i> | 584     | 1345   | 1965    | 2664    | 3018                     | 3469    |                         |
|                           | 188 rpm | 186 rpm  | 185 rpm | 184 rpm | 181 rpm                  | 176 rpm |                         |
| 19.81<br><i>Max Int.</i>  | 354     | 1027   | 1752    | 2443    | 2832                     | 2753    |                         |
|                           | 236 rpm | 235 rpm  | 233 rpm | 231 rpm | 229 rpm                  | 228 rpm |                         |

| BMPHZ 400                |                           | 23.98 in <sup>3</sup> /rev (392.9 cm <sup>3</sup> /rev) |         |         |         |                          |         |                         |
|--------------------------|---------------------------|---|---------|---------|---------|--------------------------|---------|-------------------------|
| Pressure (psi →)         |                           | 435   | 580     | 725     | 870     | 1015<br><i>Max Cont.</i> | 1160    | 1305<br><i>Max Int.</i> |
| <b>FLOW</b>              | (gpm ↓)                   | <b>Torque (in•lbf) Speed Specification</b>              |         |         |         |                          |         |                         |
|                          | 2.11                      | 1416  | 1859    |         |         |                          |         |                         |
|                          |                           | 20 rpm  | 19 rpm  |         |         |                          |         |                         |
|                          | 3.96                      | 1398  | 1832    | 2248    | 2779    | 3186                     | 3602    | 4009                    |
|                          |                           | 37 rpm  | 36 rpm  | 35 rpm  | 34 rpm  | 33 rpm                   | 31 rpm  | 30 rpm                  |
|                          | 5.28                      | 1319  | 1788    | 2204    | 2753    | 3142                     | 3567    | 3947                    |
|                          |                           | 50 rpm  | 49 rpm  | 49 rpm  | 48 rpm  | 46 rpm                   | 42 rpm  | 40 rpm                  |
|                          | 7.93                      | 1195  | 1761    | 2177    | 2691    | 3080                     | 3496    | 3877                    |
|                          |                           | 75 rpm  | 74 rpm  | 73 rpm  | 72 rpm  | 71 rpm                   | 69 rpm  | 65 rpm                  |
|                          | 9.25                      | 1106  | 1699    | 2133    | 2664    | 3027                     | 3443    | 3797                    |
|                          |                           | 88 rpm  | 86 rpm  | 85 rpm  | 84 rpm  | 83 rpm                   | 81 rpm  | 79 rpm                  |
|                          | 10.57                     | 991   | 1522    | 2053    | 2558    | 2956                     | 3319    | 3726                    |
|                          |                           | 112 rpm   | 111 rpm | 110 rpm | 108 rpm | 106 rpm                  | 104 rpm | 103 rpm                 |
|                          | 14.52                     | 929   | 1398    | 1903    | 2443    | 2903                     | 3160    | 3549                    |
|                          |                           | 137 rpm   | 135 rpm | 133 rpm | 131 rpm | 130 rpm                  | 126 rpm | 122 rpm                 |
|                          | 15.85<br><i>Max Cont.</i> | 885   | 1239    | 1779    | 2230    | 2770                     | 2956    | 3443                    |
| 150 rpm                  |                           | 148 rpm   | 146 rpm | 144 rpm | 142 rpm | 140 rpm                  | 134 rpm |                         |
| 19.81<br><i>Max Int.</i> | 478                       | 1133  | 1602    | 2045    | 2673    | 2753                     | 3346    |                         |
|                          | 187 rpm                   | 185 rpm   | 181 rpm | 172 rpm | 170 rpm | 162 rpm                  | 158 rpm |                         |

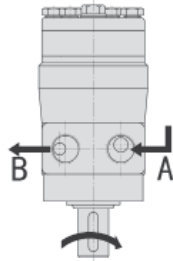


# BMPHZ Technical Data

## Case Drain

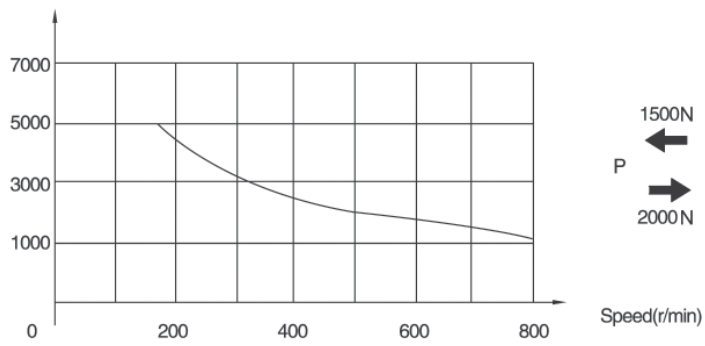
In applications without a motor drain line, the pressure exerted on the shaft seal is marginally in excess of the return line pressure. When the drain line is used, the pressure exerted on the shaft seal is equal to the return line pressure.

## Shaft Rotation Direction



## Radial Forces

P (N) Radial force



1500N  
← P  
→ 2000N

Speed(r/min)

