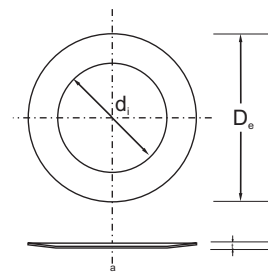


BP Series Disc Springs

for BALL BEARING APPLICATIONS

Material : C1075 or Chrome-Vanadium Steel
Surface Finish : Natural Oiled or phosphates



● Load tolerances : $\pm 20\%$ at 75h

Bearing Disc Springs & Washers (Plain, Slotted and Multi Wave)

International Springs Stocks all types of Ball Bearing Disc Springs Plain, Slotted Preloading Bearing Washers. Ball-Bearing Disc Springs are used with radial Ball bearings to minimize vibration and shaft deflection. Proper preloading will increase bearing rigidity and eliminate excessive wear & tear and running noise.

Advantages of Ball Bearing Disc Springs

1.) Significant increase or decrease in applied force even with small variation in deflection..
2.) Backlash compensation & regressive curves help reduce preload variations changes.
3.) Very low force characteristic with very large deflection range.
4.) Multiplication of force by stacking of two or more in parallel.
5.) Available in all size to accommodate all bearing sizes.
6.) Elimination of noise and play in Ball Bearings.
7.) Round shape ensures equal distribution of load on the bearing ring.

Application of Preloaded Bearing Washers in Electric motors helps to reduce operating noise. The preload force remains practically constant when there is axial displacement of the bearing as a result of thermal expansion.

If preload is primarily to protect the bearing from vibration damage when stationary, then greater preload is required.

Plain Ball Bearing Washers

| Part No. | Ball Bearing designation no. | Dimension (mm) | | | Height "h" (mm) | L0.50 (mm) | F0.50 (N) | L0.75 (mm) | F0.75 (N) |
|-----------|------------------------------|----------------|-------|---------------|-----------------|------------|-----------|------------|-----------|
| | | D_e | d_i | Thickness "t" | | | | | |
| BP-090620 | 623 | 9.8 | 6.2 | 0.20 | 0.40 | 0.10 | 19 | 0.15 | 24 |
| BP-120725 | 624 | 12.8 | 7.2 | 0.25 | 0.50 | 0.12 | 24 | 0.19 | 29 |
| BP-150825 | 625 634 | 15.8 | 8.2 | 0.25 | 0.55 | 0.15 | 20 | 0.22 | 23 |
| BP-180930 | 626 635 | 18.8 | 9.2 | 0.30 | 0.65 | 0.17 | 26 | 0.26 | 31 |
| BP-181035 | 607 | 18.8 | 10.2 | 0.35 | 0.70 | 0.17 | 40 | 0.26 | 51 |
| BP-211235 | 608 627 | 21.8 | 12.3 | 0.35 | 0.75 | 0.20 | 38 | 0.30 | 46 |
| BP-231440 | 609 | 23.7 | 14.3 | 0.40 | 0.90 | 0.25 | 69 | 0.37 | 80 |
| BP-251440 | 6000 629 | 25.7 | 14.3 | 0.40 | 0.90 | 0.25 | 54 | 0.37 | 64 |
| BP-271740 | 6001 | 27.7 | 17.3 | 0.40 | 1.00 | 0.30 | 73 | 0.45 | 80 |
| BP-291740 | 6200 | 29.7 | 17.3 | 0.40 | 1.10 | 0.35 | 80 | 0.52 | 82 |
| BP-312040 | 6002 6201 | 31.7 | 20.4 | 0.40 | 1.10 | 0.35 | 79 | 0.52 | 81 |
| BP-342040 | 6300 | 34.6 | 20.4 | 0.40 | 1.10 | 0.35 | 60 | 0.52 | 61 |
| BP-342250 | 6003 6202 | 34.6 | 22.4 | 0.50 | 1.20 | 0.35 | 106 | 0.52 | 119 |
| BP-362050 | 6301 | 36.6 | 20.4 | 0.50 | 1.30 | 0.40 | 103 | 0.60 | 111 |
| BP-392550 | 6203 | 39.6 | 25.5 | 0.50 | 1.30 | 0.40 | 103 | 0.60 | 111 |
| BP-412550 | 6004 6302 | 41.6 | 25.5 | 0.50 | 1.40 | 0.45 | 113 | 0.67 | 114 |
| BP-463060 | 6005 6204 6303 | 46.5 | 30.5 | 0.60 | 1.50 | 0.45 | 140 | 0.67 | 155 |
| BP-513560 | 6205 6304 | 51.5 | 35.5 | 0.60 | 1.50 | 0.45 | 124 | 0.67 | 135 |
| BP-544060 | 6006 | 54.5 | 40.5 | 0.60 | 1.50 | 0.45 | 127 | 0.67 | 140 |
| BP-614070 | 6007 6206 6305 | 61.5 | 40.5 | 0.70 | 1.80 | 0.55 | 164 | 0.82 | 186 |
| BP-675070 | 6008 | 67.5 | 50.5 | 0.70 | 1.70 | 0.50 | 143 | 0.75 | 160 |
| BP-714570 | 6306 | 71.5 | 45.5 | 0.70 | 2.10 | 0.70 | 190 | 1.05 | 185 |

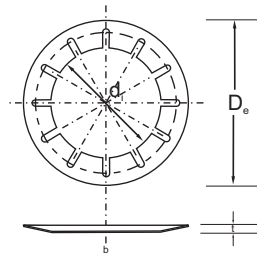


| Plain Ball Bearing Washers | | | | | | | | | |
|----------------------------|------------------------------|----------------|----------------|---------------|-----------------|------------|-----------|------------|-----------|
| Part No. | Ball Bearing designation no. | Dimension (mm) | | | Height "h" (mm) | L0.50 (mm) | F0.50 (N) | L0.75 (mm) | F0.75 (N) |
| | | D _e | d _i | Thickness "t" | | | | | |
| BP-715070 | 6207 | 71.5 | 50.5 | 0.70 | 2.10 | 0.70 | 223 | 1.05 | 217 |
| BP-745580 | 6009 | 74.5 | 55.5 | 0.80 | 1.90 | 0.55 | 186 | 0.82 | 212 |
| BP-795080 | 6307 | 79.5 | 50.5 | 0.80 | 2.30 | 0.75 | 228 | 1.12 | 228 |
| BP-795580 | 6010 6208 | 79.5 | 55.5 | 0.80 | 2.30 | 0.75 | 264 | 1.12 | 264 |
| BP-846090 | 6209 | 84.5 | 60.5 | 0.90 | 2.50 | 0.80 | 352 | 1.20 | 357 |
| BP-896090 | 6308 | 89.5 | 60.5 | 0.90 | 2.50 | 0.80 | 284 | 1.20 | 288 |
| BP-896590 | 6011 6210 | 89.5 | 65.5 | 0.90 | 2.50 | 0.80 | 330 | 1.20 | 333 |
| BP-947510 | 6012 | 94.5 | 75.5 | 1.00 | 2.20 | 0.60 | 272 | 0.90 | 325 |
| BP-996510 | 6309 | 99.0 | 65.5 | 1.00 | 2.60 | 0.80 | 274 | 1.20 | 293 |
| BP-997010 | 6013 6211 | 99.0 | 70.5 | 1.00 | 2.60 | 0.80 | 312 | 1.20 | 333 |
| BP-1097012 | 6310 | 109.0 | 70.5 | 1.25 | 2.70 | 0.73 | 294 | 1.09 | 356 |
| BP-1097512 | 6014 6212 | 109.0 | 75.5 | 1.25 | 2.70 | 0.73 | 327 | 1.09 | 394 |
| BP-1149012 | 6015 | 114.0 | 90.5 | 1.25 | 2.45 | 0.60 | 311 | 0.90 | 396 |
| BP-1197512 | 6311 | 119.0 | 75.5 | 1.25 | 2.80 | 0.78 | 270 | 1.16 | 319 |
| BP-1198512 | 6213 | 119.0 | 85.5 | 1.25 | 2.80 | 0.78 | 331 | 1.16 | 391 |
| BP-1249012 | 6016 6214 | 124.0 | 90.5 | 1.25 | 3.00 | 0.88 | 392 | 1.31 | 441 |
| BP-1298512 | 6312 | 129.0 | 85.5 | 1.25 | 3.20 | 0.98 | 375 | 1.46 | 402 |
| BP-1299512 | 6017 6215 | 129.0 | 95.5 | 1.25 | 3.20 | 0.98 | 328 | 1.46 | 441 |
| BP-1399012 | 6313 | 139.0 | 90.5 | 1.25 | 3.25 | 1.00 | 329 | 1.50 | 353 |
| BP-13910112 | 6018 6216 | 139.0 | 101.0 | 1.25 | 3.25 | 1.00 | 398 | 1.50 | 427 |
| BP-1499515 | 6314 | 149.0 | 95.5 | 1.50 | 3.20 | 0.85 | 312 | 1.28 | 380 |
| BP-14910615 | 6020 6217 | 149.0 | 106.0 | 1.50 | 3.20 | 0.85 | 368 | 1.28 | 448 |
| BP-15910115 | 6315 | 159.0 | 101.0 | 1.50 | 3.50 | 1.00 | 356 | 1.50 | 409 |
| BP-15911115 | 6021 6218 | 159.0 | 111.0 | 1.50 | 3.50 | 1.00 | 415 | 1.50 | 477 |
| BP-16911115 | 6316 | 169.0 | 111.0 | 1.50 | 3.80 | 1.15 | 432 | 1.73 | 472 |
| BP-16912115 | 6022 6219 | 169.0 | 121.0 | 1.50 | 3.80 | 1.15 | 497 | 1.73 | 542 |
| BP-17912120 | 6317 | 179.0 | 121.0 | 2.00 | 4.20 | 1.10 | 702 | 1.65 | 861 |
| BP-17912620 | 6024 6220 | 179.0 | 126.0 | 2.00 | 4.20 | 1.10 | 761 | 1.65 | 934 |
| BP-18912120 | 6318 | 189.0 | 121.0 | 2.00 | 4.30 | 1.15 | 628 | 1.73 | 760 |
| BP-18913120 | 6221 | 189.0 | 131.0 | 2.00 | 4.30 | 1.15 | 702 | 1.73 | 849 |
| BP-19813120 | 6319 | 198.0 | 131.0 | 2.00 | 4.50 | 1.25 | 691 | 1.88 | 813 |
| BP-19814120 | 6026 6222 | 198.0 | 141.0 | 2.00 | 4.50 | 1.25 | 779 | 1.88 | 917 |
| BP-21315122 | 6224 6320 | 213.0 | 151.0 | 2.25 | 4.50 | 1.12 | 746 | 1.69 | 941 |
| BP-22316122 | 6030 6321 | 223.0 | 161.0 | 2.25 | 4.60 | 1.17 | 747 | 1.76 | 933 |
| BP-22816122 | 6226 | 228.0 | 161.0 | 2.25 | 4.95 | 1.35 | 864 | 2.02 | 1030 |
| BP-23816122 | 6032 6322 | 238.0 | 161.0 | 2.25 | 5.25 | 1.50 | 886 | 2.25 | 1020 |
| BP-24817125 | 6228 | 248.0 | 171.0 | 2.50 | 5.00 | 1.25 | 795 | 1.88 | 1000 |
| BP-25817125 | 6034 6324 | 258.0 | 171.0 | 2.50 | 5.50 | 1.50 | 928 | 2.25 | 1108 |
| BP-26818125 | 6230 | 268.0 | 181.0 | 2.50 | 5.70 | 1.60 | 990 | 2.40 | 1160 |
| BP-27818125 | 6036 6326 | 278.0 | 181.0 | 2.50 | 6.00 | 1.75 | 1020 | 2.63 | 1160 |
| BP-28819127 | 6038 6232 | 288.0 | 191.0 | 2.75 | 5.75 | 1.50 | 931 | 2.25 | 1150 |
| BP-29819127 | 6328 | 298.0 | 191.0 | 2.75 | 6.35 | 1.80 | 1130 | 2.70 | 1310 |
| BP-30820230 | 6040 6234 | 308.0 | 202.0 | 3.00 | 6.10 | 1.55 | 1050 | 2.33 | 1300 |
| BP-31821230 | 6236 6330 | 318.0 | 212.0 | 3.00 | 6.20 | 1.60 | 1060 | 2.40 | 1300 |
| BP-33823230 | 6044 6238 6332 | 338.0 | 232.0 | 3.00 | 6.60 | 1.80 | 1180 | 2.70 | 1410 |
| BP-35824230 | 6048 6240 6334 | 358.0 | 242.0 | 3.00 | 7.20 | 2.10 | 1350 | 3.15 | 1530 |

BS Series Disc Springs

for BALL BEARING APPLICATIONS

Material : C1075 or Chrome-Vanadium Steel
 Surface Finish : Natural Oiled or phosphates



● Load tolerances : $\pm 20\%$ at 75h

Slotted Ball Bearing Washers

| Part No. | Ball Bearing designation no. | Dimension (mm) | | | Height "h" (mm) | L0.50 (mm) | F0.50 (N) | L0.75 (mm) | F0.75 (N) |
|-----------|------------------------------|----------------|----------------|---------------|-----------------|------------|-----------|------------|-----------|
| | | D _o | d _i | Thickness "t" | | | | | |
| BS-090620 | 623 | 9.8 | 6.2 | 0.15 | 0.60 | 0.23 | 9 | 0.35 | 13 |
| BS-120725 | 624 | 12.8 | 7.2 | 0.20 | 0.65 | 0.23 | 16 | 0.35 | 18 |
| BS-150825 | 625 634 | 15.8 | 8.2 | 0.25 | 0.75 | 0.25 | 17 | 0.40 | 20 |
| BS-180930 | 626 635 | 18.8 | 9.2 | 0.25 | 1.00 | 0.38 | 17 | 0.55 | 20 |
| BS-181035 | 607 | 18.8 | 10.2 | 0.25 | 1.05 | 0.40 | 19 | 0.60 | 24 |
| BS-211235 | 608 627 | 21.8 | 12.3 | 0.25 | 1.25 | 0.50 | 19 | 0.75 | 24 |
| BS-231440 | 609 | 23.7 | 14.3 | 0.30 | 1.30 | 0.50 | 21 | 0.75 | 25 |
| BS-251440 | 6000 629 | 25.7 | 14.3 | 0.30 | 1.40 | 0.55 | 24 | 0.80 | 28 |
| BS-271740 | 6001 | 27.7 | 17.3 | 0.35 | 1.45 | 0.55 | 25 | 0.80 | 31 |
| BS-291740 | 6200 | 29.7 | 17.3 | 0.35 | 1.55 | 0.60 | 26 | 0.90 | 32 |
| BS-312040 | 6002 6201 | 31.7 | 20.4 | 0.35 | 1.55 | 0.60 | 27 | 0.90 | 33 |
| BS-342040 | 6300 | 34.6 | 20.4 | 0.40 | 1.65 | 0.65 | 27 | 1.00 | 32 |
| BS-342250 | 6003 6202 | 34.6 | 22.4 | 0.35 | 1.55 | 0.60 | 27 | 0.90 | 32 |
| BS-362050 | 6301 | 36.6 | 20.4 | 0.40 | 1.90 | 0.75 | 31 | 1.10 | 35 |
| BS-392550 | 6203 | 39.6 | 25.5 | 0.40 | 1.90 | 0.75 | 33 | 1.10 | 37 |
| BS-412550 | 6004 6302 | 41.6 | 25.5 | 0.45 | 2.05 | 0.80 | 34 | 1.20 | 39 |
| BS-463060 | 6005 6204 6303 | 46.5 | 30.5 | 0.45 | 2.05 | 0.80 | 39 | 1.20 | 44 |
| BS-513560 | 6205 6304 | 51.5 | 35.5 | 0.45 | 2.10 | 0.85 | 42 | 1.25 | 47 |
| BS-544060 | 6006 | 54.5 | 40.5 | 0.45 | 2.15 | 0.85 | 48 | 1.30 | 53 |
| BS-614070 | 6007 6206 6305 | 61.5 | 40.5 | 0.55 | 2.55 | 1.00 | 49 | 1.50 | 54 |
| BS-675070 | 6008 | 67.5 | 50.5 | 0.55 | 2.60 | 1.05 | 76 | 1.60 | 78 |
| BS-714570 | 6306 | 71.5 | 45.5 | 0.60 | 2.90 | 1.15 | 71 | 1.70 | 74 |
| BS-715070 | 6207 | 71.5 | 50.5 | 0.60 | 2.90 | 1.15 | 127 | 1.70 | 127 |
| BS-745570 | 6009 | 74.5 | 55.5 | 0.60 | 2.90 | 1.15 | 88 | 1.70 | 91 |
| BS-795080 | 6307 | 79.5 | 50.5 | 0.70 | 3.10 | 1.20 | 78 | 1.80 | 83 |
| BS-795580 | 6010 6208 | 79.5 | 55.5 | 0.70 | 2.90 | 1.10 | 127 | 1.65 | 127 |
| BS-846090 | 6209 | 84.5 | 60.5 | 0.75 | 3.15 | 1.20 | 66 | 1.80 | 78 |
| BS-896090 | 6308 | 89.5 | 60.5 | 0.80 | 3.30 | 1.25 | 90 | 1.90 | 104 |
| BS-896590 | 6011 6210 | 89.5 | 65.5 | 0.80 | 3.40 | 1.30 | 180 | 1.95 | 189 |
| BS-947510 | 6012 | 94.5 | 75.5 | 0.80 | 3.45 | 1.35 | 191 | 2.00 | 206 |

** Larger Sizes available upon Request..

