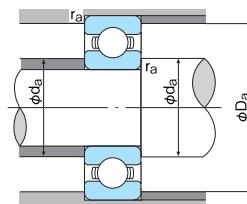
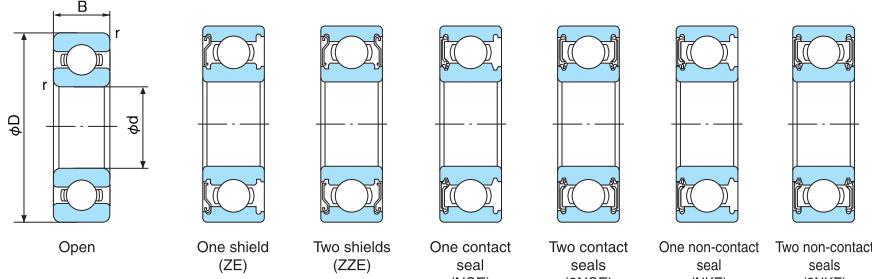


Deep-groove Ball Bearings

Bore Diameter: 10~25mm



■ Dynamic equivalent radial load
 $P_r = X F_r + Y F_a$

■ Static equivalent radial load

Larger value of following to be used:

$$P_{st} = 0.6 F_r + 0.5 F_a$$

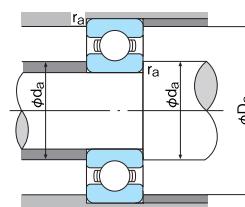
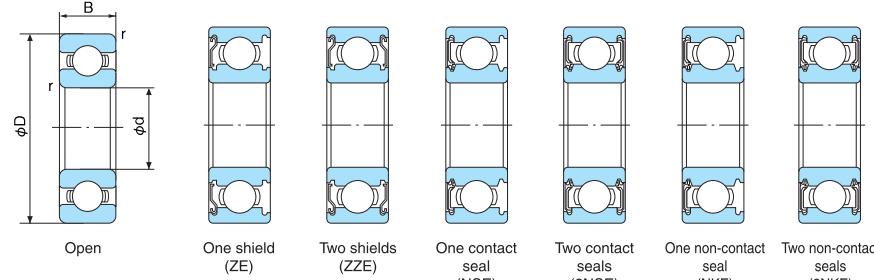
$$P_{st} = F_r$$

| $\frac{F_a}{F_r}$ Cor | e | $\frac{F_a}{F_r} \leq e$ | | $\frac{F_a}{F_r} > e$ | |
|-----------------------|------|--------------------------|---|-----------------------|------|
| | | X | Y | X | Y |
| 0.172 | 0.19 | | | | 2.30 |
| 0.345 | 0.22 | 1 | 0 | 0.56 | 1.99 |
| 0.689 | 0.26 | | | | 1.71 |
| 1.03 | 0.28 | | | | 1.55 |
| 1.38 | 0.30 | 1 | 0 | 0.56 | 1.45 |
| 2.07 | 0.34 | | | | 1.31 |
| 3.45 | 0.38 | | | | 1.15 |
| 5.17 | 0.42 | 1 | 0 | 0.56 | 1.04 |
| 6.89 | 0.44 | | | | 1.00 |

| Boundary dimensions (mm) | | | | Bearing No. | | | | | | Basic dynamic load rating Cr (N) | Basic static load rating Cor (N) | Factor fo | Limiting speed (min⁻¹) | | | Abutment and fillet dimensions (mm) | | | Mass (kg) | Bearing No. | | | | |
|--------------------------|----|----|---------|-------------|-------------|----------|-------------------|------------|-----------------------|----------------------------------|----------------------------------|-----------|------------------------|-----------------|-------------------------------|-------------------------------------|---------------|----------|-----------|-------------|------|-----|-------|-------|
| d | D | B | r (min) | Open type | Shield type | | Contact seal type | | Non-contact seal type | | | | Grease lubrication | Oil lubrication | Open type, ZE, ZZE, NKE, 2NKE | NSE, 2NSE | Open type, ZE | da (min) | Da (max) | ra (max) | | | | |
| | | | | | 6800 | 6800ZE | 6800ZZE | 6800NSE | 6800-2NSE | 6800NKE | 6800-2NKE | | | | | | | | | | | | | |
| 10 | 19 | 5 | 0.3 | 6800 | 6800ZE | 6800ZZE | 6800NSE | 6800-2NSE | 6800NKE | 6800-2NKE | 2120 | 985 | 14.2 | 37000 | 24000 | 44000 | 12 | 17 | 0.3 | 0.005 | 6800 | | | |
| | 22 | 6 | 0.3 | 6900 | 6900ZE | 6900ZZE | 6900NSE | 6900-2NSE | 6900NKE | 6900-2NKE | | | | 2490 | 1130 | 14.0 | 33000 | 22000 | 38000 | 12 | 20 | 0.3 | 0.009 | 6900 |
| | 26 | 8 | 0.3 | 6000 | 6000ZE | 6000ZZE | 6000NSE | 6000-2NSE | 6000NKE | 6000-2NKE | | | | 4550 | 1970 | 12.4 | 30000 | 22000 | 36000 | 12 | 24 | 0.3 | 0.019 | 6000 |
| | 30 | 9 | 0.6 | 6200 | 6200ZE | 6200ZZE | 6200NSE | 6200-2NSE | 6200NKE | 6200-2NKE | | | | 5100 | 2390 | 13.2 | 25000 | 18000 | 30000 | 15 | 25 | 0.6 | 0.032 | 6200 |
| | 35 | 11 | 0.6 | 6300 | 6300ZE | 6300ZZE | 6300NSE | 6300-2NSE | 6300NKE | 6300-2NKE | | | | 8100 | 3450 | 11.3 | 23000 | 17000 | 27000 | 15 | 30 | 0.6 | 0.053 | 6300 |
| 12 | 21 | 5 | 0.3 | 6801 | 6801ZE | 6801ZZE | 6801NSE | 6801-2NSE | 6801NKE | 6801-2NKE | 1920 | 1040 | 15.3 | 32000 | 20000 | 39000 | 14 | 19 | 0.3 | 0.006 | 6801 | | | |
| | 24 | 6 | 0.3 | 6901 | 6901ZE | 6901ZZE | 6901NSE | 6901-2NSE | 6901NKE | 6901-2NKE | | | | 2700 | 1320 | 14.5 | 30000 | 20000 | 36000 | 14 | 22 | 0.3 | 0.011 | 6901 |
| | 28 | 8 | 0.3 | 6001 | 6001ZE | 6001ZZE | 6001NSE | 6001-2NSE | 6001NKE | 6001-2NKE | | | | 5100 | 2390 | 13.2 | 28000 | 18000 | 32000 | 14 | 26 | 0.3 | 0.023 | 6001 |
| | 32 | 10 | 0.6 | 6201 | 6201ZE | 6201ZZE | 6201NSE | 6201-2NSE | 6201NKE | 6201-2NKE | | | | 6800 | 3050 | 12.3 | 22000 | 17000 | 28000 | 17 | 27 | 0.6 | 0.037 | 6201 |
| | 37 | 12 | 1 | 6301 | 6301ZE | 6301ZZE | 6301NSE | 6301-2NSE | 6301NKE | 6301-2NKE | | | | 9750 | 4250 | 11.2 | 20000 | 16000 | 24000 | 18 | 31 | 1.0 | 0.060 | 6301 |
| 15 | 24 | 5 | 0.3 | 6802 | 6802ZE | 6802ZZE | 6802NSE | 6802-2NSE | 6802NKE | 6802-2NKE | 2080 | 1260 | 15.8 | 28000 | 17000 | 34000 | 17 | 22 | 0.3 | 0.007 | 6802 | | | |
| | 28 | 7 | 0.3 | 6902 | 6902ZE | 6902ZZE | 6902NSE | 6902-2NSE | 6902NKE | 6902-2NKE | | | | 4300 | 2250 | 14.3 | 26000 | 17000 | 31000 | 17 | 26 | 0.3 | 0.016 | 6902 |
| | 32 | 8 | 0.3 | 16002 | — | — | — | — | — | — | | | | 5600 | 2840 | 13.9 | 24000 | — | 28000 | 20 | 27 | 0.3 | 0.025 | 16002 |
| | 32 | 9 | 0.3 | 6002 | 6002ZE | 6002ZZE | 6002NSE | 6002-2NSE | 6002NKE | 6002-2NKE | | | | 5600 | 2840 | 13.9 | 24000 | 15000 | 28000 | 17 | 30 | 0.3 | 0.032 | 6002 |
| | 35 | 11 | 0.6 | 6202 | 6202ZE | 6202ZZE | 6202NSE | 6202-2NSE | 6202NKE | 6202-2NKE | | | | 7650 | 3700 | 13.1 | 20000 | 15000 | 24000 | 20 | 30 | 0.6 | 0.045 | 6202 |
| 17 | 42 | 13 | 1 | 6302 | 6302ZE | 6302ZZE | 6302NSE | 6302-2NSE | 6302NKE | 6302-2NKE | 11400 | 5400 | 12.3 | 17000 | 13000 | 21000 | 21 | 36 | 1.0 | 0.082 | 6302 | | | |
| | 26 | 5 | 0.3 | 6803 | 6803ZE | 6803ZZE | 6803NSE | 6803-2NSE | 6803NKE | 6803-2NKE | | | | 2630 | 1570 | 16.1 | 26000 | 15000 | 30000 | 19 | 24 | 0.3 | 0.008 | 6803 |
| | 30 | 7 | 0.3 | 6903 | 6903ZE | 6903ZZE | 6903NSE | 6903-2NSE | 6903NKE | 6903-2NKE | | | | 4600 | 2550 | 14.7 | 24000 | 15000 | 29000 | 19 | 28 | 0.3 | 0.018 | 6903 |
| | 35 | 8 | 0.3 | 16003 | — | — | — | — | — | — | | | | 6000 | 3250 | 14.3 | 22000 | — | 26000 | 22 | 30 | 0.3 | 0.032 | 16003 |
| | 35 | 10 | 0.3 | 6003 | 6003ZE | 6003ZZE | 6003NSE | 6003-2NSE | 6003NKE | 6003-2NKE | | | | 6000 | 3250 | 14.3 | 22000 | 14000 | 26000 | 19 | 33 | 0.3 | 0.039 | 6003 |
| 20 | 40 | 12 | 0.6 | 6203 | 6203ZE | 6203ZZE | 6203NSE | 6203-2NSE | 6203NKE | 6203-2NKE | 9550 | 4800 | 13.1 | 18000 | 12000 | 21000 | 22 | 35 | 0.6 | 0.065 | 6203 | | | |
| | 47 | 14 | 1 | 6303 | 6303ZE | 6303ZZE | 6303NSE | 6303-2NSE | 6303NKE | 6303-2NKE | | | | 13600 | 6550 | 12.3 | 16000 | 11000 | 19000 | 23 | 41 | 1.0 | 0.115 | 6303 |
| | 32 | 7 | 0.3 | 6804 | 6804ZE | 6804ZZE | 6804NSE | 6804-2NSE | 6804NKE | 6804-2NKE | 4000 | 2640 | 15.5 | 22000 | 13000 | 26000 | 22 | 30 | 0.3 | 0.019 | 6804 | | | |
| | 37 | 9 | 0.3 | 6904 | 6904ZE | 6904ZZE | 6904NSE | 6904-2NSE | 6904NKE | 6904-2NKE | | | | 6350 | 3700 | 14.8 | 19000 | 12000 | 23000 | 22 | 35 | 0.3 | 0.036 | 6904 |
| | 42 | 8 | 0.3 | 16004 | — | — | — | — | — | — | | | | 7900 | 4500 | 14.5 | 18000 | — | 21000 | 25 | 37 | 0.3 | 0.050 | 16004 |
| | 42 | 12 | 0.6 | 6004 | 6004ZE | 6004ZZE | 6004NSE | 6004-2NSE | 6004NKE | 6004-2NKE | | | | 9400 | 5000 | 13.9 | 18000 | 11000 | 21000 | 24 | 38 | 0.6 | 0.070 | 6004 |
| | 47 | 14 | 1 | 6204 | 6204ZE | 6204ZZE | 6204NSE | 6204-2NSE | 6204NKE | 6204-2NKE | | | | 12800 | 6600 | 13.1 | 16000 | 11000 | 18000 | 26 | 41 | 1.0 | 0.106 | 6204 |
| 22 | 52 | 15 | 1.1 | 6304 | 6304ZE | 6304ZZE | 6304NSE | 6304-2NSE | 6304NKE | 6304-2NKE | 15900 | 7900 | 12.4 | 14000 | 10000 | 17000 | 27 | 45 | 1.1 | 0.144 | 6304 | | | |
| | 50 | 14 | 1 | 62/22 | 62/22ZE | 62/22ZZE | 62/22NSE | 62/22-2NSE | 62/22NKE | 62/22-2NKE | | | | 13900 | 6950 | 13.1 | 14000 | 9700 | 17000 | 28 | 44 | 1.0 | 0.120 | 62/22 |
| | 56 | 16 | 1.1 | 63/22 | 63/22ZE | 63/22ZZE | 63/22NSE | 63/22-2NSE | 63/22NKE | 63/22-2NKE | | | | 18400 | 9250 | 12.4 | 13000 | 9500 | 16000 | 29 | 49 | 1.0 | 0.176 | 63/22 |
| | 37 | 7 | 0.3 | 6805 | 6805ZE | 6805ZZE | 6805NSE | 6805-2NSE | 6805NKE | 6805-2NKE | 4300 | 2940 | 16.0 | 18000 | 10000 | 22000 | 27 | 35 | 0.3 | 0.022 | 6805 | | | |
| | 42 | 9 | 0.3 | 6905 | 6905ZE | 6905ZZE | 6905NSE | 6905-2NSE | 6905NKE | 6905-2NKE | | | | 7000 | 4500 | 15.3 | 16000 | 10000 | 20000 | 27 | 40 | 0.3 | 0.042 | 6905 |
| 25 | 47 | 8 | 0.3 | 16005 | — | — | — | — | — | — | | | | 6950 | 4600 | 15.6 | 15000 | — | 18000 | 30 | 42 | 0.3 | 0.060 | 16005 |
| | 47 | 12 | 0.6 | 6005 | 6005ZE | 6005ZZE | 6005NSE | 6005-2NSE | 6005NKE | 6005-2NKE | 10100 | 5850 | 14.5 | 15000 | 9500 | 18000 | 29 | 43 | 0.6 | 0.079 | 6005 | | | |
| | 52 | 15 | 1 | 6205 | 6205ZE | 6205ZZE | 6205NSE | 6205-2NSE | 6205NKE | 6205-2NKE | | | | 14000 | 7900 | 13.9 | 13000 | 9000 | 16000 | 31 | 46 | 1.0 | 0.128 | 6205 |
| | 62 | 17 | 1.1 | 6305 | 6305ZE | 6305ZZE | 6305NSE | 6305-2NSE | 6305NKE | 6305-2NKE | | | | 23600 | 12100 | 12.2 | 12000 | 8100 | 14000 | 32 | 55 | 1.0 | 0.232 | 6305 |

Deep-groove Ball Bearings

Bore Diameter: 28~50mm



■ Dynamic equivalent radial load
 $P_r = X F_r + Y F_a$

■ Static equivalent radial load

Larger value of following to be used:

$P_{st} = 0.6 F_r + 0.5 F_a$

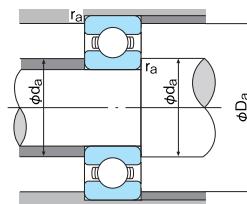
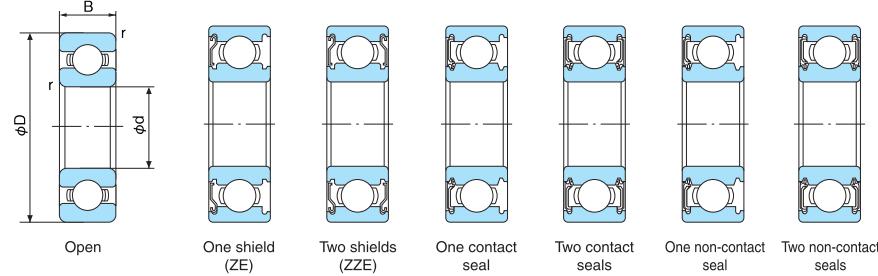
$P_{st} = F_r$

| $\frac{F_a}{F_r}$ Cor | e | $\frac{F_a}{F_r} \leq e$ | | $\frac{F_a}{F_r} > e$ | |
|-----------------------|------|--------------------------|---|-----------------------|------|
| | | X | Y | X | Y |
| 0.172 | 0.19 | | | | 2.30 |
| 0.345 | 0.22 | 1 | 0 | 0.56 | 1.99 |
| 0.689 | 0.26 | | | | 1.71 |
| 1.03 | 0.28 | | | | 1.55 |
| 1.38 | 0.30 | 1 | 0 | 0.56 | 1.45 |
| 2.07 | 0.34 | | | | 1.31 |
| 3.45 | 0.38 | | | | 1.15 |
| 5.17 | 0.42 | 1 | 0 | 0.56 | 1.04 |
| 6.89 | 0.44 | | | | 1.00 |

| Boundary dimensions (mm) | | | | Bearing No. | | | | | | Basic dynamic load rating Cr (N) | Basic static load rating Cor (N) | Factor fo | Limiting speed (min⁻¹) | | | Abutment and fillet dimensions (mm) | | | Mass (kg) | Bearing No. | | |
|--------------------------|-----|----|---------|-------------|-------------|----------|-------------------|------------|-----------------------|----------------------------------|----------------------------------|-----------|------------------------|-----------------|-------------------------------|-------------------------------------|---------------|----------|-----------|-------------|-------|--|
| d | D | B | r (min) | Open type | Shield type | | Contact seal type | | Non-contact seal type | | | | Grease lubrication | Oil lubrication | Open type, ZE, ZZE, NKE, 2NKE | NSE, 2NSE | Open type, ZE | da (min) | Da (max) | ra (max) | | |
| | | | | | 62/28ZE | 62/28ZZE | 62/28NSE | 62/28-2NSE | 62/28NKE | 62/28-2NKE | | | Open type, ZE | | | | | | | | | |
| 28 | 58 | 16 | 1 | 62/28 | 62/28ZE | 62/28ZZE | 62/28NSE | 62/28-2NSE | 62/28NKE | 62/28-2NKE | 17900 | 9750 | 13.1 | 12000 | 8200 | 14000 | 34 | 52 | 1.0 | 0.175 | 62/28 | |
| | 68 | 18 | 1.1 | 63/28 | 63/28ZE | 63/28ZZE | 63/28NSE | 63/28-2NSE | 63/28NKE | 63/28-2NKE | 26800 | 14000 | 12.4 | 11000 | 7500 | 13000 | 35 | 61 | 1.0 | 0.287 | 63/28 | |
| 30 | 42 | 7 | 0.3 | 6806 | 6806ZE | 6806ZZE | 6806NSE | 6806-2NSE | 6806NKE | 6806-2NKE | 5350 | 3800 | 16.4 | 15000 | 9000 | 18000 | 32 | 40 | 0.3 | 0.026 | 6806 | |
| | 47 | 9 | 0.3 | 6906 | 6906ZE | 6906ZZE | 6906NSE | 6906-2NSE | 6906NKE | 6906-2NKE | 7250 | 5000 | 15.8 | 14000 | 8500 | 17000 | 32 | 45 | 0.3 | 0.045 | 6906 | |
| | 55 | 9 | 0.3 | 16006 | — | — | — | — | — | — | 9950 | 6550 | 15.4 | 13000 | — | 15000 | 35 | 50 | 0.3 | 0.085 | 16006 | |
| | 55 | 13 | 1 | 6006 | 6006ZE | 6006ZZE | 6006NSE | 6006-2NSE | 6006NKE | 6006-2NKE | 13200 | 8300 | 14.8 | 13000 | 8000 | 15000 | 35 | 50 | 1.0 | 0.117 | 6006 | |
| | 62 | 16 | 1 | 6206 | 6206ZE | 6206ZZE | 6206NSE | 6206-2NSE | 6206NKE | 6206-2NKE | 19500 | 11300 | 13.9 | 11000 | 7500 | 13000 | 36 | 56 | 1.0 | 0.199 | 6206 | |
| 32 | 72 | 19 | 1.1 | 6306 | 6306ZE | 6306ZZE | 6306NSE | 6306-2NSE | 6306NKE | 6306-2NKE | 26700 | 15000 | 13.2 | 10000 | 6700 | 12000 | 37 | 65 | 1.0 | 0.346 | 6306 | |
| | 65 | 17 | 1 | 62/32 | 62/32ZZE | 62/32NSE | 62/32-2NSE | 62/32NKE | 62/32-2NKE | 22400 | 13100 | 13.6 | 11000 | 7100 | 12000 | 38 | 59 | 1.0 | 0.230 | 62/32 | | |
| | 75 | 20 | 1.1 | 63/32 | 63/32ZE | 63/32ZZE | 63/32NSE | 63/32-2NSE | 63/32NKE | 63/32-2NKE | 30000 | 16200 | 12.7 | 9500 | 6500 | 11000 | 39 | 68 | 1.0 | 0.382 | 63/32 | |
| | 47 | 7 | 0.3 | 6807 | 6807ZE | 6807ZZE | 6807NSE | 6807-2NSE | 6807NKE | 6807-2NKE | 4750 | 3800 | 16.4 | 14000 | 7600 | 16000 | 37 | 45 | 0.3 | 0.029 | 6807 | |
| | 55 | 10 | 0.6 | 6907 | 6907ZE | 6907ZZE | 6907NSE | 6907-2NSE | 6907NKE | 6907-2NKE | 10400 | 7150 | 15.6 | 12000 | 7500 | 15000 | 39 | 51 | 0.6 | 0.073 | 6907 | |
| 35 | 62 | 9 | 0.3 | 16007 | — | — | — | — | — | — | 11700 | 8150 | 15.6 | 12000 | — | 14000 | 40 | 57 | 0.6 | 0.110 | 16007 | |
| | 62 | 14 | 1 | 6007 | 6007ZE | 6007ZZE | 6007NSE | 6007-2NSE | 6007NKE | 6007-2NKE | 16000 | 10300 | 14.8 | 12000 | 6800 | 14000 | 40 | 57 | 1.0 | 0.156 | 6007 | |
| | 72 | 17 | 1.1 | 6207 | 6207ZE | 6207ZZE | 6207NSE | 6207-2NSE | 6207NKE | 6207-2NKE | 25700 | 15300 | 13.8 | 9800 | 6300 | 11000 | 42 | 65 | 1.0 | 0.288 | 6207 | |
| | 80 | 21 | 1.5 | 6307 | 6307ZE | 6307ZZE | 6307NSE | 6307-2NSE | 6307NKE | 6307-2NKE | 33500 | 19200 | 13.2 | 8800 | 6000 | 10000 | 44 | 71 | 1.5 | 0.457 | 6307 | |
| | 52 | 7 | 0.3 | 6808 | 6808ZE | 6808ZZE | 6808NSE | 6808-2NSE | 6808NKE | 6808-2NKE | 5950 | 4900 | 16.2 | 12000 | 6700 | 14000 | 42 | 50 | 0.3 | 0.033 | 6808 | |
| 40 | 62 | 12 | 0.6 | 6908 | 6908ZE | 6908ZZE | 6908NSE | 6908-2NSE | 6908NKE | 6908-2NKE | 13700 | 9950 | 15.8 | 11000 | 6300 | 13000 | 44 | 58 | 0.6 | 0.108 | 6908 | |
| | 68 | 9 | 0.3 | 16008 | — | — | — | — | — | — | 11100 | 8550 | 16.1 | 10000 | — | 12000 | 45 | 63 | 0.3 | 0.125 | 16008 | |
| | 68 | 15 | 1 | 6008 | 6008ZE | 6008ZZE | 6008NSE | 6008-2NSE | 6008NKE | 6008-2NKE | 16800 | 11500 | 15.3 | 10000 | 6100 | 12000 | 45 | 63 | 1.0 | 0.194 | 6008 | |
| | 80 | 18 | 1.1 | 6208 | 6208ZE | 6208ZZE | 6208NSE | 6208-2NSE | 6208NKE | 6208-2NKE | 29100 | 17900 | 14.0 | 8700 | 5600 | 10000 | 47 | 73 | 1.0 | 0.366 | 6208 | |
| | 90 | 23 | 1.5 | 6308 | 6308ZE | 6308ZZE | 6308NSE | 6308-2NSE | 6308NKE | 6308-2NKE | 40500 | 24100 | 13.2 | 7800 | 5300 | 9200 | 49 | 81 | 1.5 | 0.633 | 6308 | |
| 45 | 58 | 7 | 0.3 | 6809 | 6809ZE | 6809ZZE | 6809NSE | 6809-2NSE | 6809NKE | 6809-2NKE | 5350 | 4900 | 16.1 | 11000 | 6000 | 13000 | 47 | 56 | 0.3 | 0.040 | 6809 | |
| | 68 | 12 | 0.6 | 6909 | 6909ZE | 6909ZZE | 6909NSE | 6909-2NSE | 6909NKE | 6909-2NKE | 14100 | 10900 | 16.1 | 10000 | 5600 | 12000 | 49 | 64 | 0.6 | 0.122 | 6909 | |
| | 75 | 10 | 0.6 | 16009 | — | — | — | — | — | — | 12900 | 10500 | 16.2 | 9200 | — | 11000 | 52 | 68 | 0.6 | 0.170 | 16009 | |
| | 75 | 16 | 1 | 6009 | 6009ZE | 6009ZZE | 6009NSE | 6009-2NSE | 6009NKE | 6009-2NKE | 20900 | 15200 | 15.3 | 9200 | 5400 | 11000 | 50 | 70 | 1.0 | 0.246 | 6009 | |
| | 85 | 19 | 1.1 | 6209 | 6209ZE | 6209ZZE | 6209NSE | 6209-2NSE | 6209NKE | 6209-2NKE | 32500 | 20500 | 14.1 | 7800 | 5300 | 9300 | 52 | 78 | 1.0 | 0.407 | 6209 | |
| 50 | 100 | 25 | 1.5 | 6309 | 6309ZE | 6309ZZE | 6309NSE | 6309-2NSE | 6309NKE | 6309-2NKE | 53000 | 32000 | 13.1 | 7000 | 4800 | 8200 | 54 | 91 | 1.5 | 0.833 | 6309 | |
| | 65 | 7 | 0.3 | 6810 | 6810ZE | 6810ZZE | 6810NSE | 6810-2NSE | 6810NKE | 6810-2NKE | 6400 | 5800 | 16.1 | 10000 | 5300 | 12000 | 52 | 63 | 0.3 | 0.052 | 6810 | |
| | 72 | 12 | 0.6 | 6910 | 6910ZE | 6910ZZE | 6910NSE | 6910-2NSE | 6910NKE | 6910-2NKE | 14500 | 11700 | 16.1 | 9500 | 5300 | 11000 | 54 | 68 | 0.6 | 0.125 | 6910 | |
| | 80 | 10 | 0.6 | 16010 | — | — | — | — | — | — | 16100 | 13100 | 16.1 | 8500 | — | 10000 | 57 | 73 | 0.6 | 0.180 | 16010 | |
| | 80 | 16 | 1 | 6010 | 6010ZE | 6010ZZE | 6010NSE | 6010-2NSE | 6010NKE | 6010-2NKE | 21800 | 16600 | 15.6 | 8500 | 5000 | 10000 | 55 | 75 | 1.0 | 0.264 | 6010 | |
| 50 | 90 | 20 | 1.1 | 6210 | 6210ZE | 6210ZZE | 6210NSE | 6210-2NSE | 6210NKE | 6210-2NKE | 35000 | 23200 | 14.4 | 7100 | 4800 | 8600 | 57 | 83 | 1.0 | 0.463 | 6210 | |
| | 110 | 27 | 2 | 6310 | 6310ZE | 6310ZZE | 6310NSE | 6310-2NSE | 6310NKE | 6310-2NKE | 62000 | 38000 | 13.1 | 6400 | 4300 | 7500 | 60 | 100 | 2.0 | 1.07 | 6310 | |

■ Deep-groove Ball Bearings

Bore Diameter: 55~80mm



■ Dynamic equivalent radial load
 $Pr = XFr + YFa$

■ Static equivalent radial load

Larger value of following to be used:

$$Por = 0.6Fr + 0.5Fa$$

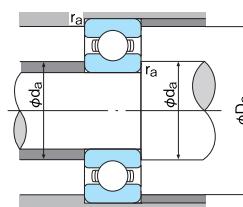
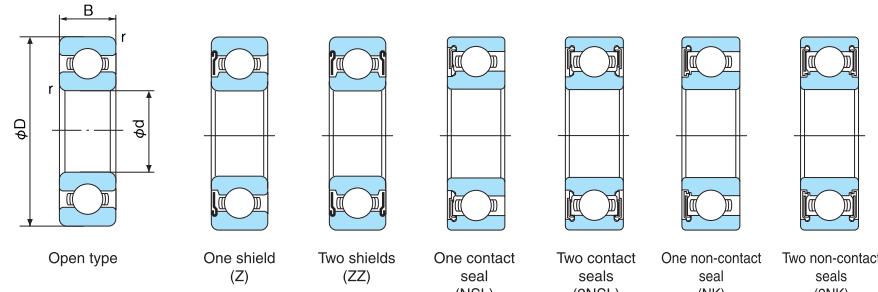
$$Por = Fr$$

| $\frac{Fr}{Fa}$ Cor | e | $\frac{Fa}{Fr} \leq e$ | | $\frac{Fa}{Fr} > e$ | |
|------------------------|------|------------------------|---|---------------------|------|
| | | X | Y | X | Y |
| 0.172 | 0.19 | | | | 2.30 |
| 0.345 | 0.22 | 1 | 0 | 0.56 | 1.99 |
| 0.689 | 0.26 | | | | 1.71 |
| 1.03 | 0.28 | | | | 1.55 |
| 1.38 | 0.30 | 1 | 0 | 0.56 | 1.45 |
| 2.07 | 0.34 | | | | 1.31 |
| 3.45 | 0.38 | | | | 1.15 |
| 5.17 | 0.42 | 1 | 0 | 0.56 | 1.04 |
| 6.89 | 0.44 | | | | 1.00 |

| Boundary dimensions (mm) | | | | Bearing No. | | | | | Basic dynamic load rating Cr (N) | Basic static load rating Cor (N) | Factor fo | Limiting speed (min⁻¹) | | | Abutment and fillet dimensions (mm) | | | Mass (kg) | Bearing No. | | |
|--------------------------|-----|----|---------|-------------|-------------|--------|-------------------|-----------|----------------------------------|----------------------------------|-----------|------------------------|-----------------|-------------------------------|-------------------------------------|---------------|----------|-----------|-------------|-------|-------|
| d | D | B | r (min) | Open type | Shield type | | Contact seal type | | | | | Grease lubrication | Oil lubrication | Open type, ZE, ZZE, NKE, 2NKE | NSE, 2NSE | Open type, ZE | da (min) | Da (max) | ra (max) | | |
| | | | | | 6811 | 6811Z | 6811ZZ | — | — | — | 8800 | 8100 | 16.2 | 8700 | — | 10000 | 57 | 70 | 0.3 | 0.083 | 6811 |
| 55 | 72 | 9 | 0.3 | 6811 | 6811Z | 6811ZZ | — | — | — | — | 16000 | 13200 | 16.2 | 8200 | — | 9600 | 60 | 75 | 1.0 | 0.177 | 6911 |
| | 80 | 13 | 1 | 6911 | 6911Z | 6911ZZ | — | — | — | — | 15200 | 13500 | 16.5 | 7700 | — | 9000 | 62 | 83 | 0.6 | 0.260 | 16011 |
| | 90 | 11 | 0.6 | 16011 | — | — | — | — | — | — | 28300 | 21300 | 15.4 | 7700 | 4500 | 9000 | 61 | 84 | 1.0 | 0.384 | 6011 |
| | 100 | 21 | 1.5 | 6211 | 6211Z | 6211ZZ | 6211NSE | 6211-2NSE | 6211NKE | 6211-2NKE | 43500 | 29300 | 14.4 | 6400 | 4300 | 7700 | 64 | 91 | 1.5 | 0.607 | 6211 |
| | 120 | 29 | 2 | 6311 | 6311Z | 6311ZZ | 6311NSE | 6311-2NSE | 6311NKE | 6311-2NKE | 71500 | 44500 | 13.1 | 5800 | 4000 | 6800 | 65 | 110 | 2.0 | 1.37 | 6311 |
| 60 | 78 | 10 | 0.3 | 6812 | 6812Z | 6812ZZ | — | — | — | — | 11500 | 10600 | 16.3 | 8000 | — | 9500 | 62 | 76 | 0.3 | 0.106 | 6812 |
| | 85 | 13 | 1 | 6912 | 6912Z | 6912ZZ | — | — | — | — | 15200 | 13500 | 16.5 | 7600 | — | 9000 | 65 | 80 | 1.0 | 0.191 | 6912 |
| | 95 | 11 | 0.6 | 16012 | — | — | — | — | — | — | 16200 | 14300 | 16.5 | 7100 | — | 8500 | 67 | 88 | 0.6 | 0.280 | 16012 |
| | 95 | 18 | 1.1 | 6012 | 6012Z | 6012ZZ | 6012NSE | 6012-2NSE | 6012NKE | 6012-2NKE | 29400 | 23200 | 15.5 | 7100 | 4100 | 8500 | 66 | 89 | 1.0 | 0.418 | 6012 |
| | 110 | 22 | 1.5 | 6212 | 6212Z | 6212ZZ | 6212NSE | 6212-2NSE | 6212NKE | 6212-2NKE | 52500 | 36000 | 14.3 | 6000 | 3800 | 7100 | 69 | 101 | 1.5 | 0.783 | 6212 |
| 65 | 78 | 10 | 0.6 | 6813 | 6813Z | 6813ZZ | — | — | — | — | 11900 | 11500 | 16.2 | 7500 | — | 8700 | 69 | 81 | 0.6 | 0.125 | 6813 |
| | 90 | 13 | 1 | 6913 | 6913Z | 6913ZZ | — | — | — | — | 17400 | 16000 | 16.5 | 7100 | — | 8500 | 70 | 85 | 1.0 | 0.200 | 6913 |
| | 100 | 11 | 0.6 | 16013 | — | — | — | — | — | — | 20500 | 18600 | 16.4 | 6700 | — | 8000 | 72 | 93 | 0.6 | 0.300 | 16013 |
| | 100 | 18 | 1.1 | 6013 | 6013Z | 6013ZZ | 6013NSE | 6013-2NSE | 6013NKE | 6013-2NKE | 30500 | 25200 | 15.7 | 6700 | 4000 | 8000 | 71 | 94 | 1.0 | 0.438 | 6013 |
| | 120 | 23 | 1.5 | 6213 | 6213Z | 6213ZZ | 6213NSE | 6213-2NSE | 6213NKE | 6213-2NKE | 57000 | 40000 | 14.4 | 5500 | 3600 | 6500 | 74 | 111 | 1.5 | 0.990 | 3213 |
| 70 | 85 | 10 | 0.6 | 6814 | 6814Z | 6814ZZ | — | — | — | — | 92500 | 59500 | 13.2 | 4900 | 3400 | 6000 | 77 | 128 | 2.0 | 2.08 | 6313 |
| | 90 | 16 | 1 | 6914 | 6914Z | 6914ZZ | — | — | — | — | 12100 | 11900 | 16.1 | 7000 | — | 8100 | 74 | 86 | 0.6 | 0.135 | 6814 |
| | 100 | 20 | 1.1 | 6014 | 6014Z | 6014ZZ | 6014NSE | 6014-2NSE | 6014NKE | 6014-2NKE | 23700 | 21100 | 16.3 | 6500 | — | 7700 | 75 | 95 | 1.0 | 0.327 | 6914 |
| | 110 | 13 | 0.6 | 16014 | — | — | — | — | — | — | 26800 | 23600 | 16.2 | 6100 | — | 7100 | 77 | 103 | 0.6 | 0.433 | 16014 |
| | 110 | 20 | 1.1 | 6014 | 6014Z | 6014ZZ | 6014NSE | 6014-2NSE | 6014NKE | 6014-2NKE | 38000 | 31000 | 15.6 | 6100 | 3600 | 7100 | 76 | 104 | 1.0 | 0.607 | 6014 |
| 75 | 125 | 24 | 1.5 | 6214 | 6214Z | 6214ZZ | 6214NSE | 6214-2NSE | 6214NKE | 6214-2NKE | 62000 | 44000 | 14.4 | 5100 | 3400 | 6300 | 79 | 116 | 1.5 | 1.07 | 6214 |
| | 150 | 35 | 2.1 | 6314 | 6314Z | 6314ZZ | 6314NSE | 6314-2NSE | 6314NKE | 6314-2NKE | 104000 | 68000 | 13.2 | 4600 | 3200 | 5400 | 82 | 138 | 2.0 | 2.52 | 6314 |
| | 95 | 10 | 0.6 | 6815 | 6815Z | 6815ZZ | — | — | — | — | 12500 | 12800 | 16.0 | 6500 | — | 7600 | 79 | 91 | 0.6 | 0.145 | 6815 |
| | 105 | 16 | 1 | 6915 | 6915Z | 6915ZZ | — | — | — | — | 20800 | 19700 | 16.5 | 6200 | — | 7200 | 80 | 100 | 1.0 | 0.345 | 6915 |
| | 115 | 13 | 0.6 | 16015 | — | — | — | — | — | — | 27600 | 25300 | 16.4 | 5700 | — | 6700 | 82 | 108 | 0.6 | 0.457 | 16015 |
| 80 | 115 | 20 | 1.1 | 6015 | 6015Z | 6015ZZ | 6015NSE | 6015-2NSE | 6015NKE | 6015-2NKE | 39500 | 33500 | 15.7 | 5700 | 3400 | 6700 | 81 | 109 | 1.0 | 0.645 | 6015 |
| | 130 | 25 | 1.5 | 6215 | 6215Z | 6215ZZ | 6215NSE | 6215-2NSE | 6215NKE | 6215-2NKE | 66000 | 49500 | 14.7 | 4800 | 3200 | 5600 | 84 | 121 | 1.5 | 1.18 | 6215 |
| | 160 | 37 | 2.1 | 6315 | 6315Z | 6315ZZ | 6315NSE | 6315-2NSE | 6315NKE | 6315-2NKE | 113000 | 77000 | 13.2 | 4300 | 2900 | 5000 | 87 | 148 | 2.0 | 3.02 | 6315 |
| | 100 | 10 | 0.6 | 6816 | 6816Z | 6816ZZ | — | — | — | — | 12700 | 13300 | 15.9 | 6000 | — | 7100 | 84 | 96 | 0.6 | 0.155 | 6816 |
| | 110 | 16 | 1 | 6916 | 6916Z | 6916ZZ | — | — | — | — | 27600 | 25300 | 16.4 | 5700 | — | 6700 | 85 | 105 | 1.0 | 0.363 | 6916 |
| 80 | 125 | 14 | 0.6 | 16016 | — | — | — | — | — | — | 32000 | 29600 | 16.4 | 5300 | — | 6300 | 87 | 118 | 0.6 | 0.597 | 16016 |
| | 125 | 22 | 1.1 | 6016 | 6016Z | 6016ZZ | — | — | — | — | 47500 | 39500 | 15.6 | 5300 | — | 6300 | 86 | 119 | 1.0 | 0.855 | 6016 |
| | 140 | 26 | 2 | 6216 | 6216Z | 6216ZZ | 6216NSL | 6216-2NSL | 6216NKE | 6216-2NKE | 72500 | 53000 | 14.6 | 4500 | 3000 | 5300 | 90 | 130 | 2.0 | 1.40 | 6216 |
| | 170 | 39 | 2.1 | 6316 | 6316Z | 6316ZZ | 6316NSL | 6316-2NSL | 6316NKE | 6316-2NKE | 123000 | 86500 | 13.2 | 4000 | 2800 | 4800 | 92 | 158 | 2.0 | 3.59 | 6316 |

Deep-groove Ball Bearings

Bore Diameter: 85~110mm

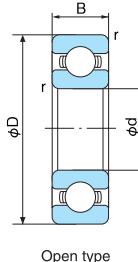


| $\frac{F_a}{F_r} \text{Cor}$ | e | $\frac{F_a}{F_r} \leq e$ | | $\frac{F_a}{F_r} > e$ | |
|------------------------------|------|--------------------------|---|-----------------------|------|
| | | X | Y | X | Y |
| 0.172 | 0.19 | | | | 2.30 |
| 0.345 | 0.22 | 1 | 0 | 0.56 | 1.99 |
| 0.689 | 0.26 | | | | 1.71 |
| 1.03 | 0.28 | | | | 1.55 |
| 1.38 | 0.30 | 1 | 0 | 0.56 | 1.45 |
| 2.07 | 0.34 | | | | 1.31 |
| 3.45 | 0.38 | | | | 1.15 |
| 5.17 | 0.42 | 1 | 0 | 0.56 | 1.04 |
| 6.89 | 0.44 | | | | 1.00 |

| Boundary dimensions (mm) | | | | Bearing No. | | | | | | Basic dynamic load rating Cr (N) | Basic static load rating Cor (N) | Factor f_0 | Limiting speed (min ⁻¹) | | | Abutment and fillet dimensions (mm) | | | Mass (kg) | Bearing No. |
|--------------------------|-----|----|---------|-------------|-------------|-------------------|-----------------------|--------------------|--|----------------------------------|----------------------------------|--------------|-------------------------------------|-----------|--------------|-------------------------------------|----------|----------|-----------|-------------|
| d | D | B | r (min) | Open type | Shield type | Contact seal type | Non-contact seal type | Grease lubrication | | | | | Open type, Z, ZZ, NK, 2NK | NSL, 2NSL | Open type, Z | da (min) | Da (max) | ra (max) | | |
| 85 | 110 | 13 | 1 | 6817 | 6817Z | 6817ZZ | — | — | | 18700 | 19000 | 16.2 | 5700 | — | 6700 | 90 | 105 | 1.0 | 0.265 | 6817 |
| | 120 | 18 | 1.1 | 6917 | 6917Z | 6917ZZ | — | — | | 32000 | 29600 | 16.4 | 5400 | — | 6300 | 91 | 113 | 1.0 | 0.517 | 6917 |
| | 130 | 14 | 0.6 | 16017 | — | — | — | — | | 31500 | 29800 | 16.4 | 5000 | — | 6000 | 92 | 123 | 0.6 | 0.626 | 16017 |
| | 130 | 22 | 1.1 | 6017 | 6017Z | 6017ZZ | — | — | | 49500 | 43000 | 15.7 | 5000 | — | 6000 | 91 | 124 | 1.1 | 0.895 | 6017 |
| | 150 | 28 | 2 | 6217 | 6217Z | 6217ZZ | 6217NSL | 6217-2NSL | | 84000 | 62000 | 14.5 | 4300 | 2800 | 5000 | 95 | 140 | 2.0 | 1.79 | 6217 |
| 90 | 180 | 41 | 3 | 6317 | 6317Z | 6317ZZ | 6317NSL | 6317-2NSL | | 133000 | 96500 | 13.3 | 3800 | 2600 | 4500 | 99 | 166 | 2.5 | 4.23 | 6317 |
| | 115 | 13 | 1 | 6818 | 6818Z | 6818ZZ | — | — | | 19000 | 19700 | 16.1 | 5400 | — | 6300 | 95 | 110 | 1.0 | 0.280 | 6818 |
| | 125 | 18 | 1.1 | 6918 | 6918Z | 6918ZZ | — | — | | 33000 | 31500 | 16.4 | 5100 | — | 6000 | 96 | 119 | 1.0 | 0.540 | 6918 |
| | 140 | 16 | 1 | 16018 | — | — | — | — | | 41500 | 39500 | 16.3 | 4800 | — | 5600 | 99 | 131 | 1.0 | 0.848 | 16018 |
| | 140 | 24 | 1.5 | 6018 | 6018Z | 6018ZZ | — | — | | 58000 | 49500 | 15.6 | 4800 | — | 5600 | 97 | 133 | 1.5 | 1.17 | 6018 |
| 95 | 160 | 30 | 2 | 6218 | 6218Z | 6218ZZ | 6218NSL | 6218-2NSL | | 96000 | 71500 | 14.5 | 4000 | 2600 | 4800 | 100 | 150 | 2.0 | 2.15 | 6218 |
| | 190 | 43 | 3 | 6318 | 6318Z | 6318ZZ | 6318NSL | 6318-2NSL | | 143000 | 107000 | 13.3 | 3600 | 2400 | 4300 | 104 | 176 | 2.5 | 4.91 | 6318 |
| | 120 | 13 | 1 | 6819 | 6819Z | 6819ZZ | — | — | | 19300 | 20500 | 16.0 | 5000 | — | 6000 | 100 | 115 | 1.0 | 0.298 | 6819 |
| | 130 | 18 | 1.1 | 6919 | 6919Z | 6919ZZ | — | — | | 33500 | 33500 | 16.5 | 4800 | — | 5700 | 101 | 124 | 1.0 | 0.567 | 6919 |
| | 145 | 16 | 1 | 16019 | — | — | — | — | | 41000 | 39500 | 16.4 | 4600 | — | 5300 | 104 | 136 | 1.0 | 0.885 | 16019 |
| 100 | 145 | 24 | 1.5 | 6019 | 6019Z | 6019ZZ | — | — | | 60500 | 54000 | 15.8 | 4500 | — | 5300 | 102 | 138 | 1.5 | 1.22 | 6019 |
| | 170 | 32 | 2.1 | 6219 | 6219Z | 6219ZZ | 6219NSL | 6219-2NSL | | 109000 | 81500 | 14.4 | 3800 | 2600 | 4500 | 107 | 158 | 2.0 | 2.62 | 6219 |
| | 200 | 45 | 3 | 6319 | 6319Z | 6319ZZ | 6319NSL | 6319-2NSL | | 153000 | 118000 | 13.3 | 3300 | 2400 | 3900 | 109 | 186 | 2.5 | 5.67 | 6319 |
| | 125 | 13 | 1 | 6820 | 6820Z | 6820ZZ | — | — | | 19600 | 21200 | 16.0 | 4800 | — | 5600 | 105 | 120 | 1.0 | 0.311 | 6820 |
| | 140 | 20 | 1.1 | 6920 | 6920Z | 6920ZZ | — | — | | 42500 | 36500 | 16.5 | 4500 | — | 5300 | 106 | 134 | 1.0 | 0.771 | 6920 |
| 105 | 150 | 16 | 1 | 16020 | — | — | — | — | | 37500 | 39500 | 16.4 | 4300 | — | 5300 | 109 | 141 | 1.0 | 0.910 | 16020 |
| | 150 | 24 | 1.5 | 6020 | 6020Z | 6020ZZ | — | — | | 60000 | 54000 | 15.9 | 4300 | — | 5300 | 107 | 143 | 1.5 | 1.26 | 6020 |
| | 180 | 34 | 2.1 | 6220 | 6220Z | 6220ZZ | 6220NSL | 6220-2NSL | | 122000 | 93000 | 14.4 | 3600 | 2400 | 4300 | 112 | 168 | 2.0 | 3.14 | 6220 |
| | 215 | 47 | 3 | 6320 | 6320Z | 6320ZZ | 6320NSL | 6320-2NSL | | 173000 | 141000 | 13.2 | 3200 | 2200 | 3700 | 114 | 201 | 2.5 | 7.00 | 6320 |
| | 130 | 13 | 1 | 6821 | — | — | — | — | | 19900 | 21900 | 15.9 | 4800 | — | 5600 | 110 | 125 | 1.0 | 0.325 | 6821 |
| 110 | 145 | 20 | 1.1 | 6921 | — | — | — | — | | 42500 | 42000 | 16.4 | 4300 | — | 5300 | 111 | 139 | 1.0 | 0.793 | 6921 |
| | 160 | 18 | 1 | 16021 | — | — | — | — | | 37500 | 50500 | 16.4 | 4000 | — | 4800 | 114 | 151 | 1.0 | 1.20 | 16021 |
| | 160 | 26 | 2 | 6021 | 6021Z | 6021ZZ | — | — | | 72500 | 65500 | 15.8 | 4000 | — | 4800 | 113 | 152 | 2.0 | 1.60 | 6021 |
| | 190 | 36 | 2.1 | 6221 | 6221Z | 6221ZZ | — | — | | 133000 | 104000 | 14.3 | 3400 | — | 4000 | 117 | 178 | 2.0 | 3.76 | 6221 |
| | 225 | 49 | 3 | 6321 | 6321Z | 6321ZZ | — | — | | 184000 | 153000 | 13.2 | 3000 | — | 3600 | 119 | 211 | 2.5 | 8.05 | 6321 |
| 110 | 140 | 16 | 1 | 6822 | — | — | — | — | | 27300 | 29400 | 16.9 | 4300 | — | 5300 | 115 | 135 | 1.0 | 0.510 | 6822 |
| | 150 | 20 | 1.1 | 6922 | — | — | — | — | | 38000 | 38500 | 16.4 | 4300 | — | 5000 | 116 | 144 | 1.0 | 0.830 | 6922 |
| | 170 | 19 | 1 | 16022 | — | — | — | — | | 44000 | 45000 | 16.5 | 3800 | — | 4500 | 119 | 161 | 1.0 | 1.46 | 16022 |
| | 170 | 28 | 2 | 6022 | 6022Z | 6022ZZ | 6022NSL | 6022-2NSL | | 84500 | 73000 | 15.5 | 3800 | — | 4500 | 118 | 162 | 2.0 | 1.97 | 6022 |
| | 200 | 38 | 2.1 | 6222 | 6222Z | 6222ZZ | 6222NSL | 6222-2NSL | | 144000 | 117000 | 14.3 | 3200 | — | 3800 | 122 | 188 | 2.0 | 4.36 | 6222 |
| | 240 | 50 | 3 | 6322 | 6322Z | 6322ZZ | 6322NSL | 6322-2NSL | | 205000 | 179000 | 13.1 | 2900 | — | 3400 | 124 | 226 | 2.5 | 9.54 | 6322 |

■ Deep-groove Ball Bearings

Bore Diameter: 120~170mm



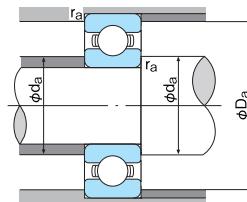
Open type



One shield (Z)



Two shields (ZZ)



■ Dynamic equivalent radial load

$$Pr = XFr + YFa$$

■ Static equivalent radial load

Larger value of following to be used:

$$Pst = 0.6Fr + 0.5Fa$$

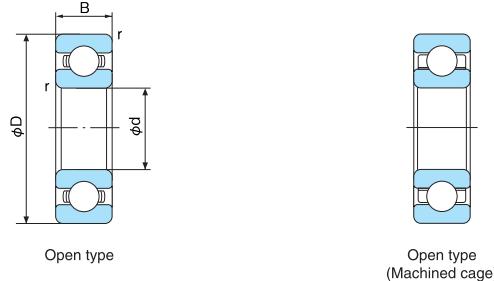
$$Pst = Fr$$

| $\frac{FrFa}{Cor}$ | e | $\frac{Fa}{Fr} \leq e$ | | $\frac{Fa}{Fr} > e$ | |
|--------------------|------|------------------------|---|---------------------|------|
| | | X | Y | X | Y |
| 0.172 | 0.19 | | | | 2.30 |
| 0.345 | 0.22 | 1 | 0 | 0.56 | 1.99 |
| 0.689 | 0.26 | | | | 1.71 |
| 1.03 | 0.28 | | | | 1.55 |
| 1.38 | 0.30 | 1 | 0 | 0.56 | 1.45 |
| 2.07 | 0.34 | | | | 1.31 |
| 3.45 | 0.38 | | | | 1.15 |
| 5.17 | 0.42 | 1 | 0 | 0.56 | 1.04 |
| 6.89 | 0.44 | | | | 1.00 |

| Boundary dimensions (mm) | | | | Bearing No. | | | | | Basic dynamic load rating Cr (N) | Basic static load rating Cor (N) | Factor fo | Limiting speed (min⁻¹) | | | Abutment and fillet dimensions (mm) | | | Mass (kg) | Bearing No. |
|--------------------------|-----|----|---------|-------------|-------------|-------------------|-----------------------|---|----------------------------------|----------------------------------|-----------|------------------------|-----------------|--------------|-------------------------------------|----------|----------|-----------|-------------|
| d | D | B | r (min) | Open type | Shield type | Contact seal type | Non-contact seal type | | | | | Grease lubrication | Oil lubrication | Open type, Z | da (min) | Da (max) | ra (max) | | |
| | | | | | | | | | | | | Open type, Z, ZZ | NSL, 2NSL | Open type, Z | da (min) | Da (max) | ra (max) | | |
| 120 | 150 | 16 | 1 | 6824 | — | — | — | — | 28300 | 31500 | 16.0 | 4000 | — | 4800 | 125 | 145 | 1.0 | 0.549 | 6824 |
| | 165 | 22 | 1.1 | 6924 | — | — | — | — | 53000 | 54000 | 16.5 | 3800 | — | 4600 | 126 | 159 | 1.0 | 1.13 | 6924 |
| | 180 | 19 | 1 | 16024 | — | — | — | — | 48000 | 50000 | 16.4 | 3600 | — | 4300 | 129 | 171 | 1.0 | 1.80 | 16024 |
| | 180 | 28 | 2 | 6024 | 6024Z | 6024ZZ | — | — | 88000 | 79500 | 15.7 | 3600 | — | 4300 | 128 | 172 | 2.0 | 2.67 | 6024 |
| | 215 | 40 | 2.1 | 6224 | 6224Z | 6224ZZ | — | — | 145000 | 118000 | 14.4 | 2900 | — | 3400 | 132 | 203 | 2.0 | 5.15 | 6224 |
| | 260 | 55 | 3 | 6324 | 6324Z | 6324ZZ | — | — | 207000 | 185000 | 13.6 | 2600 | — | 3100 | 134 | 246 | 2.5 | 14.6 | 6324 |
| 130 | 165 | 18 | 1.1 | 6826 | — | — | — | — | 37000 | 41000 | 16.1 | 3700 | — | 4400 | 136 | 158 | 1.0 | 0.790 | 6826 |
| | 180 | 24 | 1.5 | 6926 | — | — | — | — | 65000 | 67000 | 16.4 | 3500 | — | 4200 | 137 | 173 | 1.5 | 1.78 | 6926 |
| | 200 | 22 | 1.1 | 16026 | — | — | — | — | 55000 | 59500 | 16.3 | 3200 | — | 3800 | 144 | 186 | 1.0 | 2.69 | 16026 |
| | 200 | 33 | 2 | 6026 | 6026Z | 6026ZZ | — | — | 106000 | 101000 | 15.7 | 3200 | — | 3800 | 138 | 192 | 2.0 | 3.92 | 6026 |
| | 230 | 40 | 3 | 6226 | 6226Z | 6226ZZ | — | — | 167000 | 146000 | 14.5 | 2700 | — | 3200 | 144 | 216 | 2.5 | 5.82 | 6226 |
| | 280 | 58 | 4 | 6326 | 6326Z | 6326ZZ | — | — | 229000 | 214000 | 13.6 | 2400 | — | 2800 | 148 | 262 | 3.0 | 18.2 | 6326 |
| 140 | 175 | 18 | 1.1 | 6828 | — | — | — | — | 38000 | 44500 | 16.0 | 3400 | — | 4000 | 146 | 169 | 1.0 | 0.840 | 6828 |
| | 190 | 24 | 1.5 | 6928 | — | — | — | — | 66500 | 71000 | 16.5 | 3200 | — | 3800 | 147 | 183 | 1.5 | 1.90 | 6928 |
| | 210 | 22 | 1.1 | 16028 | — | — | — | — | 56000 | 62000 | 16.2 | 3000 | — | 3500 | 154 | 196 | 1.0 | 2.86 | 16028 |
| | 210 | 33 | 2 | 6028 | 6028Z | 6028ZZ | — | — | 110000 | 109000 | 15.9 | 3000 | — | 3600 | 148 | 202 | 2.0 | 4.15 | 6028 |
| | 250 | 42 | 3 | 6228 | 6228Z | 6228ZZ | — | — | 166000 | 150000 | 14.8 | 2500 | — | 2900 | 154 | 236 | 2.5 | 7.47 | 6228 |
| | 300 | 62 | 4 | 6328 | 6328Z | 6328ZZ | — | — | 253000 | 246000 | 13.6 | 2200 | — | 2600 | 158 | 282 | 3.0 | 21.8 | 6328 |
| 150 | 190 | 20 | 1.1 | 6830 | — | — | — | — | 47500 | 54500 | 16.1 | 3200 | — | 3800 | 156 | 184 | 1.0 | 1.20 | 6830 |
| | 210 | 28 | 2 | 6930 | — | — | — | — | 85500 | 87000 | 16.4 | 3000 | — | 3500 | 158 | 202 | 2.0 | 2.64 | 6930 |
| | 225 | 24 | 1.1 | 16030 | — | — | — | — | 76500 | 82500 | 16.5 | 2800 | — | 3200 | 164 | 211 | 1.0 | 3.58 | 16030 |
| | 225 | 35 | 2.1 | 6030 | 6030Z | 6030ZZ | — | — | 126000 | 126000 | 15.9 | 2800 | — | 3200 | 159 | 216 | 2.0 | 4.48 | 6030 |
| | 270 | 45 | 3 | 6230 | 6230Z | 6230ZZ | — | — | 176000 | 168000 | 15.2 | 2300 | — | 2700 | 164 | 256 | 2.5 | 9.41 | 6230 |
| | 320 | 65 | 4 | 6330 | — | — | — | — | 274000 | 284000 | 13.9 | 2100 | — | 2400 | 168 | 302 | 3.0 | 26.2 | 6330 |
| 160 | 200 | 20 | 1.1 | 6832 | — | — | — | — | 48500 | 56500 | 16.0 | 2900 | — | 3400 | 166 | 194 | 1.0 | 1.30 | 6832 |
| | 220 | 28 | 2 | 6932 | — | — | — | — | 87500 | 95500 | 16.5 | 2800 | — | 3300 | 168 | 212 | 2.0 | 3.01 | 6932 |
| | 240 | 38 | 2.1 | 6032 | — | — | — | — | 137000 | 135000 | 15.9 | 2600 | — | 3000 | 169 | 231 | 2.0 | 5.89 | 6032 |
| | 290 | 48 | 3 | 6232 | 6232Z | 6232ZZ | — | — | 185000 | 186000 | 15.4 | 2100 | — | 2500 | 174 | 276 | 2.5 | 14.3 | 6232 |
| | 340 | 68 | 4 | 6332 | — | — | — | — | 278000 | 287000 | 13.9 | 1900 | — | 2300 | 178 | 322 | 3.0 | 28.6 | 6332 |
| 170 | 215 | 22 | 1.1 | 6834 | — | — | — | — | 60000 | 70500 | 16.1 | 2700 | — | 3200 | 177 | 208 | 1.0 | 1.85 | 6834 |
| | 230 | 28 | 2 | 6934 | — | — | — | — | 86000 | 95000 | 16.4 | 2600 | — | 3100 | 178 | 222 | 2.0 | 3.17 | 6934 |
| | 260 | 42 | 2.1 | 6034 | — | — | — | — | 161000 | 160000 | 15.7 | 2400 | — | 2800 | 179 | 251 | 2.0 | 7.92 | 6034 |
| | 310 | 52 | 4 | 6234 | — | — | — | — | 212000 | 224000 | 15.3 | 2000 | — | 2400 | 188 | 292 | 3.0 | 17.5 | 6234 |
| | 360 | 72 | 4 | 6334 | — | — | — | — | 325000 | 355000 | 13.6 | 1800 | — | 2100 | 188 | 342 | 3.0 | 34.0 | 6334 |

■ Deep-groove Ball Bearings

Bore Diameter: 180~280mm



■ Dynamic equivalent radial load
 $P_r = X F_r + Y F_a$

■ Static equivalent radial load

Larger value of following to be used:

$$P_{st} = 0.6 F_r + 0.5 F_a$$

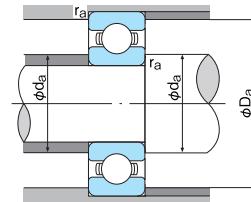
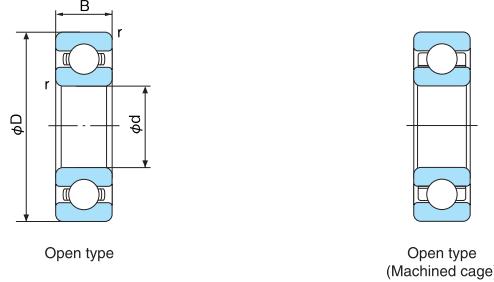
$$P_{st} = F_r$$

| $\frac{F_a}{F_r}$ Cor | e | $\frac{F_a}{F_r} \leq e$ | | $\frac{F_a}{F_r} > e$ | |
|-----------------------|------|--------------------------|---|-----------------------|------|
| | | X | Y | X | Y |
| 0.172 | 0.19 | | | | 2.30 |
| 0.345 | 0.22 | 1 | 0 | 0.56 | 1.99 |
| 0.689 | 0.26 | | | | 1.71 |
| 1.03 | 0.28 | | | | 1.55 |
| 1.38 | 0.30 | 1 | 0 | 0.56 | 1.45 |
| 2.07 | 0.34 | | | | 1.31 |
| 3.45 | 0.38 | | | | 1.15 |
| 5.17 | 0.42 | 1 | 0 | 0.56 | 1.04 |
| 6.89 | 0.44 | | | | 1.00 |

| Boundary dimensions (mm) | | | | Bearing No. | | | | Basic dynamic load rating Cr (N) | Basic static load rating Cor (N) | Factor fo | Limiting speed (min⁻¹) | | | Abutment and fillet dimensions (mm) | | | Mass (kg) | Bearing No. | | | | | | | | | |
|--------------------------|-----|----|---------|-------------|-------------|---|-------------------|----------------------------------|----------------------------------|-----------|------------------------|------|------|-------------------------------------|------|-----|-----------|-------------|------|------|--|--|--|--|--|--|--|
| d | D | B | r (min) | Open type | Shield type | | Contact seal type | Non-contact seal type | | | | | | | | | | | | | | | | | | | |
| | | | | | — | — | — | — | — | | | | | | | | | | | | | | | | | | |
| 180 | 225 | 22 | 1.1 | 6836 | — | — | — | — | — | 60500 | 73000 | 16.0 | 2600 | — | 3000 | 187 | 218 | 1.0 | 2.02 | 6836 | | | | | | | |
| | 250 | 33 | 2 | 6936 | — | — | — | — | — | 106000 | 117000 | 16.5 | 2400 | — | 2900 | 188 | 242 | 2.0 | 4.68 | 6936 | | | | | | | |
| | 280 | 46 | 2.1 | 6036 | — | — | — | — | — | 174000 | 180000 | 15.8 | 2300 | — | 2700 | 189 | 271 | 2.0 | 10.3 | 6036 | | | | | | | |
| | 320 | 52 | 4 | 6236 | — | — | — | — | — | 227000 | 242000 | 15.1 | 1900 | — | 2200 | 198 | 302 | 3.0 | 18.3 | 6236 | | | | | | | |
| 190 | 380 | 75 | 4 | 6336 | — | — | — | — | — | 325000 | 360000 | 13.9 | 1700 | — | 2000 | 198 | 362 | 3.0 | 41.9 | 6336 | | | | | | | |
| | 240 | 24 | 1.5 | 6838 | — | — | — | — | — | 73000 | 88000 | 16.1 | 2400 | — | 2900 | 198 | 232 | 1.5 | 2.60 | 6838 | | | | | | | |
| | 260 | 33 | 2 | 6938 | — | — | — | — | — | 108000 | 123000 | 16.4 | 2300 | — | 2700 | 198 | 252 | 2.0 | 4.90 | 6938 | | | | | | | |
| | 290 | 46 | 2.1 | 6038 | — | — | — | — | — | 188000 | 200000 | 15.7 | 2100 | — | 2500 | 199 | 281 | 2.0 | 10.8 | 6038 | | | | | | | |
| 200 | 340 | 55 | 4 | 6238 | — | — | — | — | — | 255000 | 282000 | 15.1 | 1800 | — | 2100 | 208 | 322 | 3.0 | 23.0 | 6238 | | | | | | | |
| | 400 | 78 | 5 | 6338 | — | — | — | — | — | 355000 | 415000 | 14.1 | 1600 | — | 1900 | 212 | 378 | 4.0 | 48.2 | 6338 | | | | | | | |
| | 250 | 24 | 1.5 | 6840 | — | — | — | — | — | 74000 | 91000 | 15.9 | 2300 | — | 2700 | 208 | 242 | 1.5 | 2.70 | 6840 | | | | | | | |
| | 280 | 38 | 2.1 | 6940 | — | — | — | — | — | 130000 | 146000 | 16.5 | 2200 | — | 2600 | 209 | 271 | 2.0 | 6.88 | 6940 | | | | | | | |
| 220 | 310 | 51 | 2.1 | 6040 | — | — | — | — | — | 202000 | 222000 | 15.8 | 2000 | — | 2400 | 209 | 301 | 2.0 | 13.9 | 6040 | | | | | | | |
| | 360 | 58 | 4 | 6240 | — | — | — | — | — | 268000 | 310000 | 15.2 | 1700 | — | 2000 | 218 | 342 | 3.0 | 28.2 | 6240 | | | | | | | |
| | 420 | 80 | 5 | 6340 | — | — | — | — | — | 380000 | 445000 | 13.9 | 1500 | — | 1800 | 222 | 398 | 4.0 | 54.6 | 6340 | | | | | | | |
| | 270 | 24 | 1.5 | 6844 | — | — | — | — | — | 76500 | 98000 | 15.9 | 2100 | — | 2400 | 228 | 262 | 1.5 | 2.98 | 6844 | | | | | | | |
| 240 | 300 | 38 | 2.1 | 6944 | — | — | — | — | — | 132000 | 154000 | 16.4 | 2000 | — | 2300 | 229 | 291 | 2.0 | 7.45 | 6944 | | | | | | | |
| | 340 | 56 | 3 | 6044 | — | — | — | — | — | 214000 | 248000 | 15.9 | 1800 | — | 2200 | 230 | 330 | 2.5 | 18.4 | 6044 | | | | | | | |
| | 400 | 65 | 4 | 6244 | — | — | — | — | — | 310000 | 375000 | 15.1 | 1500 | — | 1800 | 238 | 382 | 3.0 | 37.0 | 6244 | | | | | | | |
| | 300 | 28 | 2 | 6848 | — | — | — | — | — | 98500 | 127000 | 15.9 | 1900 | — | 2200 | 250 | 291 | 2.0 | 4.60 | 6848 | | | | | | | |
| 260 | 320 | 38 | 2.1 | 6948 | — | — | — | — | — | 154000 | 186000 | 16.3 | 1800 | — | 2100 | 249 | 311 | 2.0 | 8.02 | 6948 | | | | | | | |
| | 360 | 56 | 3 | 6048 | — | — | — | — | — | 222000 | 268000 | 16.1 | 1700 | — | 2000 | 250 | 350 | 2.5 | 19.6 | 6048 | | | | | | | |
| | 440 | 72 | 4 | 6248 | — | — | — | — | — | 340000 | 430000 | 15.2 | 1200 | — | 1500 | 258 | 322 | 3.0 | 49.9 | 6248 | | | | | | | |
| | 320 | 28 | 2 | 6852 | — | — | — | — | — | 101000 | 136000 | 15.8 | 1700 | — | 2000 | 269 | 311 | 2.0 | 4.95 | 6852 | | | | | | | |
| 280 | 360 | 46 | 2.1 | 6952 | — | — | — | — | — | 204000 | 254000 | 16.4 | 1600 | — | 1900 | 269 | 351 | 2.0 | 13.4 | 6952 | | | | | | | |
| | 400 | 65 | 4 | 6052 | — | — | — | — | — | 252000 | 320000 | 16.1 | 1500 | — | 1800 | 272 | 388 | 3.0 | 29.3 | 6052 | | | | | | | |
| | 480 | 80 | 5 | 6252 | — | — | — | — | — | 400000 | 540000 | 15.1 | 1100 | — | 1400 | 282 | 458 | 4.0 | 67.5 | 6252 | | | | | | | |
| | 350 | 33 | 2 | 6856 | — | — | — | — | — | 133000 | 177000 | 16.1 | 1600 | — | 1900 | 290 | 341 | 2.0 | 7.35 | 6856 | | | | | | | |
| 280 | 380 | 46 | 2.1 | 6956 | — | — | — | — | — | 209000 | 270000 | 16.3 | 1500 | — | 1800 | 289 | 371 | 2.0 | 14.3 | 6956 | | | | | | | |
| | 420 | 65 | 4 | 6056 | — | — | — | — | — | 266000 | 350000 | 16.1 | 1400 | — | 1600 | 293 | 405 | 3.0 | 31.0 | 6056 | | | | | | | |
| | 500 | 80 | 5 | 6256 | — | — | — | — | — | 400000 | 550000 | 15.3 | 1000 | — | 1300 | 302 | 478 | 4.0 | 71.0 | 6256 | | | | | | | |

■ Deep-groove Ball Bearings

Bore Diameter: 300~320mm



■ Dynamic equivalent radial load
 $P_r = XFr + YFa$

■ Static equivalent radial load

Larger value of following to be used:

$$P_{or} = 0.6Fr + 0.5Fa$$

$$P_{or} = Fr$$

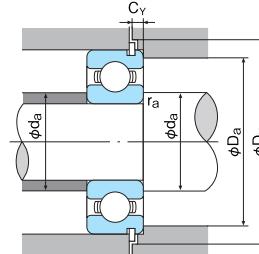
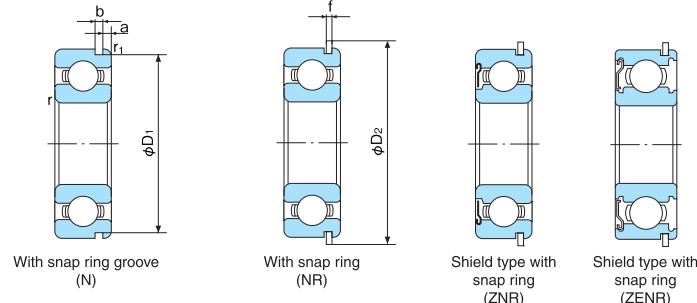
| $\frac{f_0 Fa}{Cor}$ | e | $\frac{Fa}{Fr} \leq e$ | | $\frac{Fa}{Fr} > e$ | |
|----------------------|------|------------------------|---|---------------------|------|
| | | X | Y | X | Y |
| 0.172 | 0.19 | | | | 2.30 |
| 0.345 | 0.22 | 1 | 0 | 0.56 | 1.99 |
| 0.689 | 0.26 | | | | 1.71 |
| 1.03 | 0.28 | | | | 1.55 |
| 1.38 | 0.30 | 1 | 0 | 0.56 | 1.45 |
| 2.07 | 0.34 | | | | 1.31 |
| 3.45 | 0.38 | | | | 1.15 |
| 5.17 | 0.42 | 1 | 0 | 0.56 | 1.04 |
| 6.89 | 0.44 | | | | 1.00 |

| Boundary dimensions (mm) | | | | Bearing No. | | | | | Basic dynamic load rating Cr (N) | Basic static load rating Cor (N) | Factor fo | Limiting speed (min⁻¹) | | | Abutment and fillet dimensions (mm) | | | Mass (kg) | Bearing No. |
|--------------------------|-----|----|---------|-------------|-------------|-------------------|-----------------------|--|----------------------------------|----------------------------------|-----------|------------------------|-----------------|-----------|-------------------------------------|-----------|----------|-----------|-------------|
| d | D | B | r (min) | Open type | Shield type | Contact seal type | Non-contact seal type | | | | | Grease lubrication | Oil lubrication | Open type | NSL, 2NSL | Open type | da (min) | Da (max) | ra (max) |
| 300 | 380 | 38 | 2.1 | 6860 | — | — | — | | 166000 | 219000 | 16.0 | 1500 | — | 1700 | 311 | 369 | 2.0 | 10.4 | 6860 |
| | 420 | 56 | 3 | 6960 | — | — | — | | 269000 | 370000 | 16.5 | 1400 | — | 1600 | 311 | 409 | 2.5 | 22.8 | 6960 |
| | 460 | 74 | 4 | 6060 | — | — | — | | 355000 | 490000 | 15.0 | 1300 | — | 1500 | 313 | 447 | 3.0 | 43.8 | 6060 |
| | 540 | 85 | 5 | 6260 | — | — | — | | 465000 | 670000 | 15.2 | 950 | — | 1200 | 322 | 518 | 4.0 | 88.6 | 6260 |
| 320 | 400 | 38 | 2.1 | 6864 | — | — | — | | 164000 | 218000 | 15.9 | 1400 | — | 1600 | 330 | 389 | 2.0 | 10.9 | 6864 |
| | 440 | 56 | 3 | 6964 | — | — | — | | 266000 | 370000 | 16.4 | 1300 | — | 1500 | 331 | 429 | 2.5 | 24.1 | 6964 |
| | 480 | 74 | 4 | 6064 | — | — | — | | 340000 | 470000 | 15.3 | 1200 | — | 1400 | 333 | 467 | 3.0 | 46.1 | 6064 |

Deep-groove Ball Bearings

With snap ring groove / With snap ring / Shield type with snap ring

Bore Diameter: 10~30mm



■ Dynamic equivalent radial load
 $P_r = X F_r + Y F_a$

■ Static equivalent radial load

Larger value of following to be used:

$$P_{sr} = 0.6 F_r + 0.5 F_a$$

$$P_{sr} = F_r$$

| $\frac{f_0 F_a}{C_r}$ | e | $\frac{F_a}{F_r} \leq e$ | | $\frac{F_a}{F_r} > e$ | |
|-----------------------|------|--------------------------|---|-----------------------|------|
| | | X | Y | X | Y |
| 0.172 | 0.19 | | | | 2.30 |
| 0.345 | 0.22 | 1 | 0 | 0.56 | 1.99 |
| 0.689 | 0.26 | | | | 1.71 |
| 1.03 | 0.28 | | | | 1.55 |
| 1.38 | 0.30 | 1 | 0 | 0.56 | 1.45 |
| 2.07 | 0.34 | | | | 1.31 |
| 3.45 | 0.38 | | | | 1.15 |
| 5.17 | 0.42 | 1 | 0 | 0.56 | 1.04 |
| 6.89 | 0.44 | | | | 1.00 |

| Boundary dimensions (mm) | | | | | Dimensions of snap ring groove and snap ring (mm) | | | | | Bearing No.(¹) | | | Basic dynamic load rating Cr (N) | Basic static load rating Cor (N) | Factor f ₀ | Limiting speed (min ⁻¹) | | | Abutment and fillet dimensions (mm) | | | | | Mass (kg) | Bearing No. | | |
|--------------------------|----|----|---------|----------------------|---|---------|---------|----------------------|---------|-----------------------------|--------|----------|----------------------------------|----------------------------------|-----------------------|-------------------------------------|-----------------|----------------------|-------------------------------------|----------------------|----------------------|----------------------|-------|-----------|-------------|-------|-------|
| d | D | B | r (min) | r ₁ (min) | D ₁ (max) | a (max) | b (min) | D ₂ (max) | f (max) | 6900N | 6900NR | 6900ZENR | | | | Grease lubrication | Oil lubrication | d _a (min) | D _a (max) | D _x (min) | r _a (max) | C _y (max) | | | | | |
| 10 | 22 | 6 | 0.3 | 0.3 | 20.8 | 1.05 | 0.8 | 24.8 | 0.7 | 6900N | 6900NR | 6900ZENR | 2490 | 1130 | 14.0 | 33000 | 38000 | 12 | 20 | 25.5 | 0.3 | 1.5 | 0.010 | 6900N | | | |
| | 30 | 9 | 0.6 | 0.5 | 28.17 | 2.06 | 1.35 | 34.7 | 1.12 | 6200N | 6200NR | 6200ZENR | | | | 5100 | 2390 | 13.2 | 25000 | 30000 | 15 | 25 | 35.5 | 0.6 | 2.9 | 0.032 | 6200N |
| | 35 | 11 | 0.6 | 0.5 | 33.17 | 2.06 | 1.35 | 39.7 | 1.12 | 6300N | 6300NR | 6300ZENR | | | | 8100 | 3450 | 11.3 | 23000 | 27000 | 15 | 30 | 40.5 | 0.6 | 2.9 | 0.053 | 6300N |
| 12 | 24 | 6 | 0.3 | 0.3 | 22.8 | 1.05 | 0.8 | 26.8 | 0.7 | 6901N | 6901NR | 6901ZENR | 2700 | 1320 | 14.5 | 30000 | 36000 | 14 | 22 | 27.5 | 0.3 | 1.5 | 0.012 | 6901N | | | |
| | 28 | 8 | 0.3 | 0.3 | 26.7 | 1.35 | 0.93 | 31 | 0.85 | 6001N | 6001NR | 6001ZENR | | | | 5100 | 2390 | 13.5 | 28000 | 32000 | 14 | 26 | 31.5 | 0.3 | 1.9 | 0.024 | 6001N |
| | 32 | 10 | 0.6 | 0.5 | 30.15 | 2.06 | 1.35 | 36.7 | 1.12 | 6201N | 6201NR | 6201ZENR | | | | 6800 | 3050 | 12.3 | 22000 | 28000 | 17 | 27 | 37.5 | 0.6 | 2.9 | 0.037 | 6201N |
| 15 | 37 | 12 | 1 | 0.5 | 34.77 | 2.06 | 1.35 | 41.3 | 1.12 | 6301N | 6301NR | 6301ZENR | 9750 | 4250 | 11.2 | 20000 | 24000 | 18 | 31 | 42 | 1 | 2.9 | 0.060 | 6301N | | | |
| | 28 | 7 | 0.3 | 0.3 | 26.7 | 1.3 | 0.95 | 30.8 | 0.85 | 6902N | 6902NR | 6902ZENR | | | | 4300 | 2250 | 14.3 | 26000 | 31000 | 17 | 26 | 31.5 | 0.3 | 1.8 | 0.017 | 6902N |
| | 32 | 9 | 0.3 | 0.3 | 30.15 | 2.06 | 1.35 | 36.7 | 1.12 | 6002N | 6002NR | 6002ZENR | | | | 5600 | 2840 | 13.9 | 24000 | 28000 | 17 | 30 | 37.5 | 0.3 | 2.9 | 0.033 | 6002N |
| 17 | 35 | 11 | 0.6 | 0.5 | 33.17 | 2.06 | 1.35 | 39.7 | 1.12 | 6202N | 6202NR | 6202ZENR | | | | 7650 | 3700 | 13.1 | 20000 | 24000 | 20 | 30 | 40.5 | 0.6 | 2.9 | 0.045 | 6202N |
| | 42 | 13 | 1 | 0.5 | 39.75 | 2.06 | 1.35 | 46.3 | 1.12 | 6302N | 6302NR | 6302ZENR | | | | 11400 | 5400 | 12.3 | 17000 | 21000 | 21 | 36 | 47 | 1 | 2.9 | 0.082 | 6302N |
| | 30 | 7 | 0.3 | 0.3 | 28.7 | 1.3 | 0.95 | 32.8 | 0.85 | 6903N | 6903NR | 6903ZENR | 4600 | 2550 | 14.7 | 24000 | 29000 | 19 | 28 | 33.5 | 0.3 | 1.8 | 0.019 | 6903N | | | |
| 17 | 35 | 10 | 0.3 | 0.3 | 33.17 | 2.06 | 1.35 | 39.7 | 1.12 | 6003N | 6003NR | 6003ZENR | | | | 6000 | 3250 | 14.3 | 22000 | 26000 | 19 | 33 | 40.5 | 0.3 | 2.9 | 0.041 | 6003N |
| | 40 | 12 | 0.6 | 0.5 | 38.1 | 2.06 | 1.35 | 44.6 | 1.12 | 6203N | 6203NR | 6203ZENR | | | | 9550 | 4800 | 13.1 | 18000 | 21000 | 22 | 35 | 45.5 | 0.6 | 2.9 | 0.065 | 6203N |
| | 47 | 14 | 1 | 0.5 | 44.6 | 2.46 | 1.35 | 52.7 | 1.12 | 6303N | 6303NR | 6303ZENR | | | | 13600 | 6550 | 12.3 | 16000 | 19000 | 23 | 41 | 53.5 | 1 | 3.3 | 0.115 | 6303N |
| 20 | 32 | 7 | 0.3 | 0.3 | 30.7 | 1.3 | 0.95 | 34.8 | 0.85 | 6804N | 6804NR | 6804ZENR | 4000 | 2640 | 15.5 | 22000 | 26000 | 22 | 30 | 35.5 | 0.3 | 1.8 | 0.020 | 6804N | | | |
| | 37 | 9 | 0.3 | 0.3 | 35.7 | 1.7 | 0.95 | 39.8 | 0.85 | 6904N | 6904NR | 6904ZENR | | | | 6350 | 3700 | 14.8 | 19000 | 23000 | 22 | 35 | 40.5 | 0.3 | 2.3 | 0.037 | 6904N |
| | 42 | 12 | 0.6 | 0.5 | 39.75 | 2.06 | 1.35 | 46.3 | 1.12 | 6004N | 6004NR | 6004ZENR | | | | 9400 | 5000 | 13.9 | 18000 | 21000 | 24 | 38 | 47 | 0.6 | 2.9 | 0.069 | 6004N |
| 25 | 47 | 14 | 1 | 0.5 | 44.6 | 2.46 | 1.35 | 52.7 | 1.12 | 6204N | 6204NR | 6204ZENR | 12800 | 6600 | 13.1 | 16000 | 18000 | 26 | 41 | 53.5 | 1 | 3.3 | 0.106 | 6204N | | | |
| | 52 | 15 | 1.1 | 0.5 | 49.73 | 2.46 | 1.35 | 57.9 | 1.12 | 6304N | 6304NR | 6304ZENR | | | | 15900 | 7900 | 12.4 | 14000 | 17000 | 27 | 45 | 58.5 | 1 | 3.3 | 0.144 | 6304N |
| | 62 | 17 | 1.1 | 0.5 | 59.61 | 3.28 | 1.9 | 67.7 | 1.7 | 6305N | 6305NR | 6305ZENR | | | | 23600 | 12100 | 12.2 | 12000 | 14000 | 32 | 55 | 68.5 | 1 | 4.6 | 0.232 | 6305N |
| 28 | 37 | 7 | 0.3 | 0.3 | 35.7 | 1.3 | 0.95 | 39.8 | 0.85 | 6805N | 6805NR | 6805ZENR | 4300 | 2940 | 16.0 | 18000 | 22000 | 27 | 35 | 40.5 | 0.3 | 1.8 | 0.023 | 6805N | | | |
| | 42 | 9 | 0.3 | 0.3 | 40.7 | 1.7 | 0.95 | 44.8 | 0.85 | 6905N | 6905NR | 6905ZENR | | | | 7000 | 4500 | 15.3 | 16000 | 20000 | 27 | 40 | 45.5 | 0.3 | 2.3 | 0.044 | 6905N |
| | 47 | 12 | 0.6 | 0.5 | 44.6 | 2.06 | 1.35 | 52.7 | 1.12 | 6005N | 6005NR | 6005ZENR | | | | 10100 | 5850 | 14.5 | 15000 | 18000 | 29 | 43 | 53.5 | 0.6 | 2.9 | 0.078 | 6005N |
| 30 | 52 | 15 | 1 | 0.5 | 49.73 | 2.46 | 1.35 | 57.9 | 1.12 | 6205N | 6205NR | 6205ZENR | 14000 | 7900 | 13.9 | 13000 | 16000 | 31 | 46 | 58.5 | 1 | 3.3 | 0.128 | 6205N | | | |
| | 62 | 16 | 1 | 0.5 | 59.61 | 3.28 | 1.9 | 67.7 | 1.7 | 6206N | 6206NR | 6206ZENR | | | | 19500 | 11300 | 13.9 | 11000 | 13000 | 36 | 56 | 68.5 | 1 | 4.6 | 0.199 | 6206N |
| | 72 | 19 | 1.1 | 0.5 | 68.81 | 3.28 | 1.9 | 78.6 | 1.7 | 6306N | 6306NR | 6306ZENR | | | | 26700 | 15000 | 13.2 | 10000 | 12000 | 37 | 65 | 80 | 1 | 4.6 | 0.346 | 6306N |

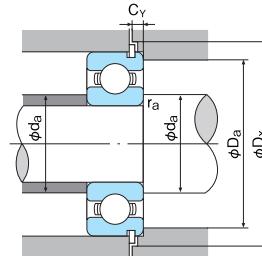
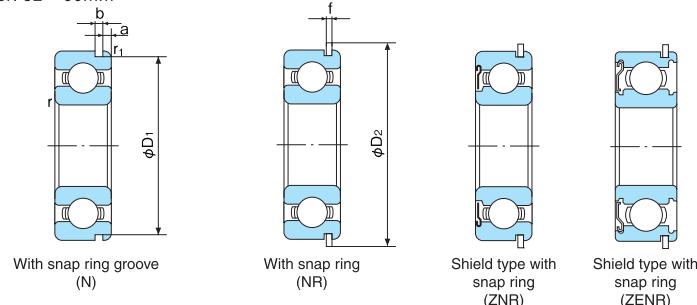
Note: (*) Bearing No. ZE means one shield type, two shields type is also available.

Remark: Dimensions of snap ring groove and snap ring are shown on pages 45 to 48.

Deep-groove Ball Bearings

With snap ring groove / With snap ring / Shield type with snap ring

Bore Diameter: 32~60mm



■ Dynamic equivalent radial load

$$P_r = X F_r + Y F_a$$

■ Static equivalent radial load

Larger value of following to be used:

$$P_{or} = 0.6 F_r + 0.5 F_a$$

$$P_{or} = F_r$$

| $\frac{f}{F_a}$ | e | $\frac{F_a}{F_r} \leq e$ | | $\frac{F_a}{F_r} > e$ | |
|-----------------|------|--------------------------|---|-----------------------|------|
| | | X | Y | X | Y |
| 0.172 | 0.19 | | | | 2.30 |
| 0.345 | 0.22 | 1 | 0 | 0.56 | 1.99 |
| 0.689 | 0.26 | | | | 1.71 |
| 1.03 | 0.28 | | | | 1.55 |
| 1.38 | 0.30 | 1 | 0 | 0.56 | 1.45 |
| 2.07 | 0.34 | | | | 1.31 |
| 3.45 | 0.38 | | | | 1.15 |
| 5.17 | 0.42 | 1 | 0 | 0.56 | 1.04 |
| 6.89 | 0.44 | | | | 1.00 |

| Boundary dimensions (mm) | | | | Dimensions of snap ring groove and snap ring (mm) | | | | | Bearing No.(¹) | | | Basic dynamic load rating Cr (N) | Basic static load rating Cor (N) | Factor f_o | Limiting speed (min ⁻¹) | | | Abutment and fillet dimensions (mm) | | | | | Mass (kg) | Bearing No. |
|--------------------------|-----|----|---------|---|----------------------|---------|---------|----------------------|-----------------------------|--------|---------|----------------------------------|----------------------------------|--------------|-------------------------------------|-----------------|----------------------|-------------------------------------|----------------------|----------------------|----------------------|-----|-----------|-------------|
| d | D | B | r (min) | r ₁ (min) | D ₁ (max) | a (max) | b (min) | D ₂ (max) | f (max) | 62/32N | 62/32NR | 62/32ZNR | | | Grease lubrication | Oil lubrication | d _a (min) | D _a (max) | D _x (min) | r _a (max) | C _y (max) | | | |
| 32 | 65 | 17 | 1 | 0.5 | 62.6 | 3.28 | 1.9 | 70.7 | 1.7 | 62/32N | 62/32NR | 62/32ZNR | 22400 | 13100 | 13.6 | 11000 | 12000 | 38 | 59 | 71.5 | 1 | 4.6 | 0.230 | 62/32N |
| | 75 | 20 | 1.1 | 0.5 | 71.83 | 3.28 | 1.9 | 81.6 | 1.7 | 63/32N | 63/32NR | 63/32ZNR | | | | 30000 | 16200 | 12.7 | 9500 | 11000 | 39 | 68 | 83 | 1 |
| 35 | 47 | 7 | 0.3 | 0.3 | 45.7 | 1.3 | 0.95 | 49.8 | 0.85 | 6807N | 6807NR | 6807ZNR | 4750 | 3800 | 16.4 | 14000 | 16000 | 37 | 45 | 50.5 | 0.3 | 1.8 | 0.030 | 6807N |
| | 55 | 10 | 0.6 | 0.5 | 53.7 | 1.7 | 0.95 | 57.8 | 0.85 | 6907N | 6907NR | 6907ZNR | | | | 10400 | 7150 | 15.6 | 12000 | 15000 | 39 | 51 | 58.5 | 0.6 |
| 40 | 62 | 14 | 1 | 0.5 | 59.61 | 2.08 | 1.9 | 67.7 | 1.7 | 6007N | 6007NR | 6007ZNR | 16000 | 10300 | 14.8 | 12000 | 14000 | 40 | 57 | 68.5 | 1 | 3.4 | 0.150 | 6007N |
| | 72 | 17 | 1.1 | 0.5 | 68.81 | 3.28 | 1.9 | 78.6 | 1.6 | 6207N | 6207NR | 6207ZNR | | | | 25700 | 15300 | 13.8 | 9800 | 11000 | 42 | 65 | 80 | 1 |
| 45 | 52 | 7 | 0.3 | 0.3 | 50.7 | 1.3 | 0.95 | 54.8 | 0.85 | 6808N | 6808NR | 6808ZNR | 5950 | 4900 | 16.2 | 12000 | 14000 | 42 | 50 | 55.5 | 0.3 | 1.8 | 0.034 | 6808N |
| | 62 | 12 | 0.6 | 0.5 | 60.7 | 1.7 | 0.95 | 64.8 | 0.85 | 6908N | 6908NR | 6908ZNR | | | | 13700 | 9950 | 15.8 | 11000 | 13000 | 44 | 58 | 65.5 | 0.6 |
| 50 | 68 | 15 | 1 | 0.5 | 64.82 | 2.49 | 1.9 | 74.6 | 1.7 | 6008N | 6008NR | 6008ZNR | 16800 | 11500 | 15.3 | 10000 | 12000 | 45 | 63 | 76 | 1 | 3.8 | 0.186 | 6008N |
| | 80 | 18 | 1.1 | 0.5 | 76.81 | 3.28 | 1.9 | 86.6 | 1.7 | 6208N | 6208NR | 6208ZNR | | | | 29100 | 17900 | 14.0 | 8700 | 10000 | 47 | 73 | 88 | 1 |
| 45 | 58 | 7 | 0.3 | 0.3 | 56.7 | 1.3 | 0.95 | 60.8 | 0.85 | 6809N | 6809NR | 6809ZNR | 5350 | 4900 | 16.1 | 11000 | 13000 | 47 | 56 | 61.5 | 0.3 | 1.8 | 0.042 | 6809N |
| | 68 | 12 | 0.6 | 0.5 | 66.7 | 1.7 | 0.95 | 70.8 | 0.85 | 6909N | 6909NR | 6909ZNR | | | | 14100 | 10900 | 16.1 | 10000 | 12000 | 49 | 64 | 72 | 0.6 |
| 45 | 75 | 16 | 1 | 0.5 | 71.83 | 2.49 | 1.9 | 81.6 | 1.7 | 6009N | 6009NR | 6009ZNR | 20900 | 15200 | 15.3 | 9200 | 11000 | 50 | 70 | 83 | 1 | 3.8 | 0.239 | 6009N |
| | 85 | 19 | 1.1 | 0.5 | 81.81 | 3.28 | 1.9 | 91.6 | 1.7 | 6209N | 6209NR | 6209ZNR | | | | 32500 | 20500 | 14.1 | 7800 | 9300 | 52 | 78 | 93 | 1 |
| 50 | 100 | 25 | 1.5 | 0.5 | 96.8 | 3.28 | 2.7 | 106.5 | 2.46 | 6309N | 6309NR | 6309ZNR | 53000 | 32000 | 13.1 | 7000 | 8200 | 54 | 91 | 108 | 1.5 | 5.4 | 0.833 | 6309N |
| | 65 | 7 | 0.3 | 0.3 | 63.7 | 1.3 | 0.95 | 67.8 | 0.85 | 6810N | 6810NR | 6810ZNR | | | | 6400 | 5800 | 16.1 | 10000 | 12000 | 52 | 63 | 68.5 | 0.3 |
| 50 | 72 | 12 | 0.6 | 0.5 | 70.7 | 1.7 | 0.95 | 74.8 | 0.85 | 6910N | 6910NR | 6910ZNR | 14500 | 11700 | 16.1 | 9500 | 11000 | 54 | 68 | 76 | 0.6 | 2.3 | 0.127 | 6910N |
| | 80 | 16 | 1 | 0.5 | 76.81 | 2.49 | 1.9 | 86.6 | 1.7 | 6010N | 6010NR | 6010ZNR | | | | 21800 | 16600 | 15.6 | 8500 | 10000 | 55 | 75 | 88 | 1 |
| 55 | 90 | 20 | 1.1 | 0.5 | 86.79 | 3.28 | 2.7 | 96.5 | 2.46 | 6210N | 6210NR | 6210ZNR | 35000 | 23200 | 14.4 | 7100 | 8600 | 57 | 83 | 98 | 1 | 5.4 | 0.463 | 6210N |
| | 100 | 27 | 2 | 0.5 | 106.81 | 3.28 | 2.7 | 116.6 | 2.46 | 6310N | 6310NR | 6310ZNR | | | | 62000 | 38100 | 13.1 | 6400 | 7500 | 60 | 100 | 118 | 2 |
| 55 | 72 | 9 | 0.3 | 0.3 | 70.7 | 1.7 | 0.95 | 74.8 | 0.85 | 6811N | 6811NR | 6811ZNR | 8800 | 8100 | 16.2 | 8700 | 10000 | 57 | 70 | 76 | 0.3 | 2.3 | 0.085 | 6811N |
| | 80 | 13 | 1 | 0.5 | 77.9 | 2.1 | 1.3 | 84.4 | 1.12 | 6911N | 6911NR | 6911ZNR | | | | 16000 | 13200 | 16.2 | 8200 | 9600 | 60 | 75 | 86 | 1 |
| 55 | 90 | 18 | 1.1 | 0.5 | 86.79 | 2.87 | 2.7 | 96.5 | 2.46 | 6011N | 6011NR | 6011ZNR | 28300 | 21300 | 15.4 | 7700 | 9000 | 61 | 84 | 98 | 1 | 5 | 0.375 | 6011N |
| | 100 | 21 | 1.5 | 0.5 | 96.8 | 3.28 | 2.7 | 106.5 | 2.46 | 6211N | 6211NR | 6211ZNR | | | | 43500 | 29300 | 14.4 | 6400 | 7700 | 64 | 91 | 108 | 1.5 |
| 60 | 120 | 29 | 2 | 0.5 | 115.21 | 4.06 | 3.1 | 129.7 | 2.82 | 6311N | 6311NR | 6311ZNR | 71500 | 44500 | 13.1 | 5800 | 6800 | 65 | 110 | 131.5 | 2 | 6.5 | 1.37 | 6311N |
| | 78 | 10 | 0.3 | 0.3 | 76.2 | 1.7 | 1.3 | 82.7 | 1.12 | 6812N | 6812NR | 6812ZNR | | | | 11500 | 10600 | 16.3 | 8000 | 9500 | 62 | 76 | 84 | 0.3 |
| 60 | 85 | 13 | 1 | 0.5 | 82.9 | 2.1 | 1.3 | 89.4 | 1.12 | 6912N | 6912NR | 6912ZNR | 15200 | 13500 | 16.5 | 7600 | 9000 | 65 | 80 | 91 | 1 | 2.9 | 0.195 | 6912N |
| | 95 | 18 | 1.1 | 0.5 | 91.82 | 2.87 | 2.7 | 101.6 | 2.46 | 6012N | 6012NR | 6012ZNR | | | | 29400 | 23200 | 15.5 | 7100 | 8500 | 66 | 89 | 103 | 1 |
| 60 | 110 | 22 | 1.5 | 0.5 | 106.81 | 3.28 | 2.7 | 116.6 | 2.46 | 6212N | 6212NR | 6212ZNR | 52500 | 36000 | 14.3 | 6000 | 7100 | 69 | 101 | 118 | 1.5 | 5.4 | 0.783 | 6212N |
| | 130 | 31 | 2.1 | 0.5 | 125.22 | 4.06 | 3.1 | 139.7 | 2.82 | 6312N | 6312NR | 6312ZNR | | | | 82000 | 52000 | 13.2 | 5400 | 6300 | 72 | 118 | 141.5 | 2 |

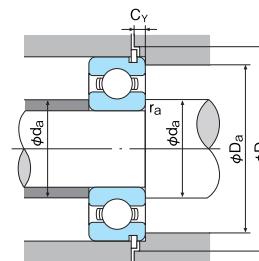
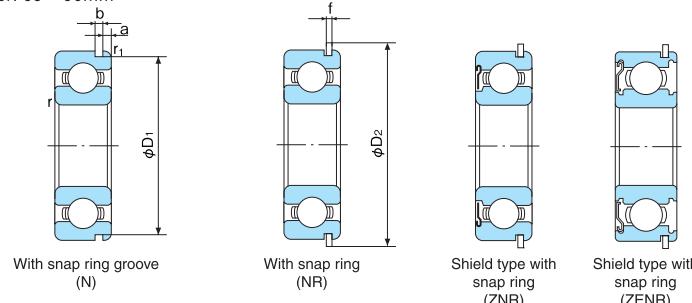
Note: (1) Bearing No. ZE means one shield type, two shields type is also available.

Remark: Dimensions of snap ring groove and snap ring are shown on pages 45 to 48.

Deep-groove Ball Bearings

With snap ring groove / With snap ring / Shield type with snap ring

Bore Diameter: 65~90mm



■ Dynamic equivalent radial load

$$Pr = XFr + YFa$$

■ Static equivalent radial load

Larger value of following to be used:

$$Por = 0.6Fr + 0.5Fa$$

$$Por = Fr$$

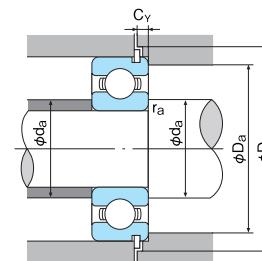
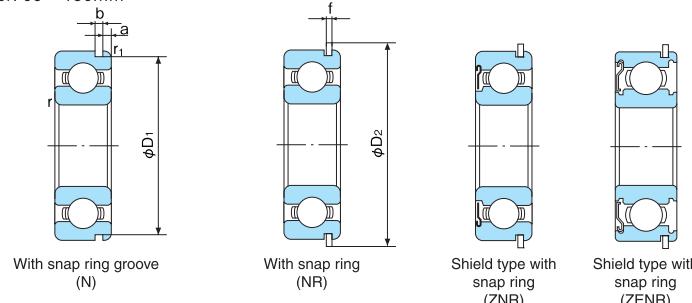
| $\frac{f_0 Fa}{Cor}$ | e | $\frac{Fa}{Fr} \leq e$ | | $\frac{Fa}{Fr} > e$ | |
|----------------------|------|------------------------|---|---------------------|------|
| | | X | Y | X | Y |
| 0.172 | 0.19 | | | | 2.30 |
| 0.345 | 0.22 | 1 | 0 | 0.56 | 1.99 |
| 0.689 | 0.26 | | | | 1.71 |
| 1.03 | 0.28 | | | | 1.55 |
| 1.38 | 0.30 | 1 | 0 | 0.56 | 1.45 |
| 2.07 | 0.34 | | | | 1.31 |
| 3.45 | 0.38 | | | | 1.15 |
| 5.17 | 0.42 | 1 | 0 | 0.56 | 1.04 |
| 6.89 | 0.44 | | | | 1.00 |

| Boundary dimensions (mm) | | | | Dimensions of snap ring groove and snap ring (mm) | | | | | | Bearing No.(¹) | | | Basic dynamic load rating Cr (N) | Basic static load rating Cor (N) | Factor f_0 | Limiting speed (min ⁻¹) | | | | Abutment and fillet dimensions (mm) | | | | Mass (kg) | Bearing No. | | |
|--------------------------|-----|----|---------|---|----------------------|---------|---------|----------------------|---------|-----------------------------|--------|----------|----------------------------------|----------------------------------|--------------|-------------------------------------|-----------------|----------------------|----------------------|-------------------------------------|----------------------|----------------------|-------|-----------|-------------|-------|-------|
| d | D | B | r (min) | r ₁ (min) | D ₁ (max) | a (max) | b (min) | D ₂ (max) | f (max) | 6813N | 6813NR | 6816ZNR | | | | Grease lubrication | Oil lubrication | d _a (min) | D _a (max) | D _x (min) | r _a (max) | C _y (max) | | | | | |
| 65 | 85 | 10 | 0.6 | 0.5 | 82.9 | 1.7 | 1.3 | 89.4 | 1.12 | 6813N | 6813NR | 6816ZNR | 11900 | 11500 | 16.2 | 7500 | 8700 | 69 | 81 | 91 | 0.6 | 2.5 | 0.130 | 6813N | | | |
| | 90 | 13 | 1 | 0.5 | 87.9 | 2.1 | 1.3 | 94.4 | 1.12 | 6913N | 6913NR | 6913ZNR | | | | 17400 | 16000 | 16.5 | 7100 | 8500 | 70 | 85 | 96 | 1 | 2.9 | 0.210 | 6913N |
| | 100 | 18 | 1.1 | 0.5 | 96.8 | 2.87 | 2.7 | 106.5 | 2.46 | 6013N | 6013NR | 6013ZENR | | | | 30500 | 25200 | 15.7 | 6700 | 8000 | 71 | 94 | 108 | 1 | 5 | 0.413 | 6013N |
| | 120 | 23 | 1.5 | 0.5 | 115.21 | 4.06 | 3.1 | 129.7 | 2.82 | 6213N | 6213NR | 6213ZENR | | | | 57000 | 40000 | 14.4 | 5500 | 6500 | 74 | 111 | 131.5 | 1.5 | 6.5 | 0.990 | 6213N |
| | 140 | 33 | 2.1 | 0.5 | 135.23 | 4.9 | 3.1 | 149.7 | 2.82 | 6313N | 6313NR | 6313ZENR | | | | 92500 | 59500 | 13.2 | 4900 | 6000 | 77 | 128 | 152 | 2 | 7.3 | 2.08 | 6313N |
| 70 | 90 | 10 | 0.6 | 0.5 | 87.9 | 1.7 | 1.3 | 94.4 | 1.12 | 6814N | 6814NR | 6814ZNR | 12100 | 11900 | 16.1 | 7000 | 8100 | 74 | 86 | 96 | 0.6 | 2.5 | 0.140 | 6814N | | | |
| | 100 | 16 | 1 | 0.5 | 97.9 | 2.5 | 1.3 | 104.4 | 1.12 | 6914N | 6914NR | 6914ZNR | | | | 23700 | 21100 | 16.3 | 6500 | 7700 | 75 | 95 | 106 | 1 | 3.3 | 0.332 | 6914N |
| | 110 | 20 | 1.1 | 0.5 | 106.81 | 2.87 | 2.7 | 116.6 | 2.46 | 6014N | 6014NR | 6014ZENR | | | | 38000 | 31000 | 15.6 | 6100 | 7100 | 76 | 104 | 118 | 1 | 5 | 0.580 | 6014N |
| | 125 | 24 | 1.5 | 0.5 | 120.22 | 4.06 | 3.1 | 134.7 | 2.82 | 6214N | 6214NR | 6214ZENR | | | | 62000 | 44000 | 14.4 | 5100 | 6300 | 79 | 116 | 136.5 | 1.5 | 6.5 | 1.07 | 6214N |
| | 150 | 35 | 2.1 | 0.5 | 145.24 | 4.9 | 3.1 | 159.7 | 2.82 | 6314N | 6314NR | 6314ZENR | | | | 104000 | 68000 | 13.2 | 4600 | 5400 | 82 | 138 | 162 | 2 | 7.3 | 2.52 | 6314N |
| 75 | 95 | 10 | 0.6 | 0.5 | 92.9 | 1.7 | 1.3 | 99.4 | 1.12 | 6815N | 6815NR | 6815ZNR | 12500 | 12800 | 16.0 | 6500 | 7600 | 79 | 91 | 101 | 0.6 | 2.5 | 0.150 | 6815N | | | |
| | 105 | 16 | 1 | 0.5 | 102.6 | 2.5 | 1.3 | 110.7 | 1.12 | 6915N | 6915NR | 6915ZNR | | | | 20800 | 19700 | 16.5 | 6200 | 7200 | 80 | 100 | 112 | 1 | 3.3 | 0.350 | 6915N |
| | 115 | 20 | 1.1 | 0.5 | 111.81 | 2.87 | 2.7 | 121.6 | 2.46 | 6015N | 6015NR | 6015ZENR | | | | 39500 | 33500 | 15.7 | 5700 | 6700 | 81 | 109 | 123 | 1 | 5 | 0.615 | 6015N |
| | 130 | 25 | 1.5 | 0.5 | 125.22 | 4.06 | 3.1 | 139.7 | 2.82 | 6215N | 6215NR | 6215ZENR | | | | 66000 | 49500 | 14.7 | 4800 | 5600 | 84 | 121 | 141.5 | 1.5 | 6.5 | 1.18 | 6215N |
| | 160 | 37 | 2.1 | 0.5 | 155.22 | 4.9 | 3.1 | 169.7 | 2.82 | 6315N | 6315NR | 6315ZENR | | | | 113000 | 77000 | 13.2 | 4300 | 5000 | 87 | 148 | 172 | 2 | 7.3 | 3.02 | 6315N |
| 80 | 100 | 10 | 0.6 | 0.5 | 97.9 | 1.7 | 1.3 | 104.4 | 1.12 | 6816N | 6816NR | 6816ZNR | 12700 | 13300 | 15.9 | 6000 | 7100 | 84 | 96 | 106 | 0.6 | 2.5 | 0.160 | 6816N | | | |
| | 110 | 16 | 1 | 0.5 | 107.6 | 2.5 | 1.3 | 115.7 | 1.12 | 6916N | 6916NR | 6916ZNR | | | | 27600 | 25300 | 16.4 | 5700 | 6700 | 85 | 105 | 117 | 1 | 3.3 | 0.370 | 6916N |
| | 125 | 22 | 1.1 | 0.5 | 120.22 | 2.87 | 3.1 | 134.7 | 2.82 | 6016N | 6016NR | 6016ZENR | | | | 47500 | 39500 | 15.6 | 5300 | 6300 | 86 | 119 | 136.5 | 1 | 5.3 | 0.825 | 6016N |
| | 140 | 26 | 2 | 0.5 | 135.23 | 4.9 | 3.1 | 149.7 | 2.82 | 6216N | 6216NR | 6216ZENR | | | | 72500 | 53000 | 14.6 | 4500 | 5300 | 90 | 130 | 152 | 2 | 7.3 | 1.40 | 6216N |
| | 170 | 39 | 2.1 | 0.5 | 163.65 | 5.69 | 3.5 | 182.9 | 3.1 | 6316N | 6316NR | 6316ZENR | | | | 123000 | 86500 | 13.2 | 4000 | 4800 | 92 | 158 | 185 | 2 | 8.4 | 3.59 | 6316N |
| 85 | 110 | 13 | 1 | 0.5 | 107.6 | 2.1 | 1.3 | 115.7 | 1.12 | 6817N | 6817NR | 6817ZNR | 18700 | 19000 | 16.2 | 5700 | 6700 | 90 | 105 | 117 | 1 | 2.9 | 0.272 | 6817N | | | |
| | 120 | 18 | 1.1 | 0.5 | 117.6 | 3.3 | 1.3 | 125.7 | 1.12 | 6917N | 6917NR | 6917ZNR | | | | 32000 | 29600 | 16.4 | 5400 | 6300 | 91 | 113 | 127 | 1 | 4.1 | 0.524 | 6917N |
| | 130 | 22 | 1.1 | 0.5 | 125.22 | 2.87 | 3.1 | 139.7 | 2.82 | 6017N | 6017NR | 6017ZENR | | | | 49500 | 43000 | 15.7 | 5000 | 6000 | 91 | 124 | 141.5 | 1 | 5.3 | 0.863 | 6017N |
| | 150 | 28 | 2 | 0.5 | 145.24 | 4.9 | 3.1 | 159.7 | 2.82 | 6217N | 6217NR | 6217ZENR | | | | 84000 | 62000 | 14.5 | 4300 | 5000 | 95 | 140 | 162 | 2 | 7.3 | 1.79 | 6217N |
| | 180 | 41 | 3 | 0.5 | 173.66 | 5.69 | 3.5 | 192.9 | 3.1 | 6317N | 6317NR | 6317ZENR | | | | 133000 | 96500 | 13.3 | 3800 | 4500 | 99 | 166 | 195 | 2.5 | 8.4 | 4.23 | 6317N |
| 90 | 115 | 13 | 1 | 0.5 | 112.6 | 2.1 | 1.3 | 120.7 | 1.2 | 6818N | 6818NR | 6818ZNR | 19000 | 19700 | 16.1 | 5400 | 6300 | 95 | 110 | 122 | 1 | 2.9 | 0.288 | 6818N | | | |
| | 125 | 18 | 1.1 | 0.5 | 122.6 | 3.3 | 1.3 | 130.7 | 1.12 | 6918N | 6918NR | 6918ZNR | | | | 33000 | 31500 | 16.4 | 5100 | 6000 | 96 | 119 | 132 | 1 | 4.1 | 0.549 | 6918N |
| | 140 | 24 | 1.5 | 0.5 | 135.23 | 3.71 | 3.1 | 149.7 | 2.82 | 6018N | 6018NR | 6018ZENR | | | | 58000 | 49500 | 15.6 | 4800 | 5600 | 97 | 133 | 152 | 1.5 | 6.1 | 1.13 | 6018N |
| | 160 | 30 | 2 | 0.5 | 155.22 | 4.9 | 3.1 | 169.7 | 2.82 | 6218N | 6218NR | 6218ZENR | | | | 96000 | 71500 | 14.5 | 4000 | 4800 | 100 | 150 | 172 | 2 | 7.3 | 2.15 | 6218N |
| | 190 | 43 | 3 | 0.5 | 183.64 | 5.69 | 3.5 | 202.9 | 3.1 | 6318N | 6318NR | 6318ZENR | | | | 143000 | 107000 | 13.3 | 3600 | 4300 | 104 | 176 | 205 | 2.5 | 8.4 | 4.91 | 6318N |

■ Deep-groove Ball Bearings

With snap ring groove / With snap ring / Shield type with snap ring

Bore Diameter: 95~130mm



■ Dynamic equivalent radial load

$$Pr = XFr + YFa$$

■ Static equivalent radial load

Larger value of following to be used:

$$Por = 0.6Fr + 0.5Fa$$

$$Por = Fr$$

| $\frac{f_0 Fa}{Cor}$ | e | $\frac{Fa}{Fr} \leq e$ | | $\frac{Fa}{Fr} > e$ | |
|----------------------|------|------------------------|---|---------------------|------|
| | | X | Y | X | Y |
| 0.172 | 0.19 | | | | 2.30 |
| 0.345 | 0.22 | 1 | 0 | 0.56 | 1.99 |
| 0.689 | 0.26 | | | | 1.71 |
| 1.03 | 0.28 | | | | 1.55 |
| 1.38 | 0.30 | 1 | 0 | 0.56 | 1.45 |
| 2.07 | 0.34 | | | | 1.31 |
| 3.45 | 0.38 | | | | 1.15 |
| 5.17 | 0.42 | 1 | 0 | 0.56 | 1.04 |
| 6.89 | 0.44 | | | | 1.00 |

| Boundary dimensions (mm) | | | | Dimensions of snap ring groove and snap ring (mm) | | | | | | Bearing No.(¹) | | | Basic dynamic load rating Cr (N) | Basic static load rating Cor (N) | Factor f_0 | Limiting speed (min ⁻¹) | | | Abutment and fillet dimensions (mm) | | | | | Mass (kg) | Bearing No. | | |
|--------------------------|-----|----|---------|---|----------------------|---------|---------|----------------------|---------|-----------------------------|--------|---------|----------------------------------|----------------------------------|--------------|-------------------------------------|-----------------|----------------------|-------------------------------------|----------------------|----------------------|----------------------|-------|-----------|-------------|-------|-------|
| d | D | B | r (min) | r ₁ (min) | D ₁ (max) | a (max) | b (min) | D ₂ (max) | f (max) | 6819N | 6819NR | 6819ZNR | | | | Grease lubrication | Oil lubrication | d _a (min) | D _a (max) | D _x (min) | r _a (max) | C _y (max) | | | | | |
| 95 | 120 | 13 | 1 | 0.5 | 117.6 | 2.1 | 1.3 | 125.7 | 1.12 | 6819N | 6819NR | 6819ZNR | 19300 | 20500 | 16.0 | 5000 | 6000 | 100 | 115 | 127 | 1 | 2.9 | 0.307 | 6819N | | | |
| | 130 | 18 | 1.1 | 0.5 | 127.6 | 3.3 | 1.3 | 135.7 | 1.12 | 6919N | 6919NR | 6919ZNR | | | | 33500 | 33500 | 16.5 | 4800 | 5700 | 101 | 124 | 137 | 1 | 4.1 | 0.576 | 6919N |
| | 145 | 24 | 1.5 | 0.5 | 140.23 | 3.71 | 3.1 | 154.7 | 2.82 | 6019N | 6019NR | 6019ZNR | | | | 60500 | 54000 | 15.8 | 4500 | 5300 | 102 | 138 | 157 | 1.5 | 6.1 | 1.16 | 6019N |
| | 170 | 32 | 2.1 | 0.5 | 163.65 | 5.69 | 3.5 | 182.9 | 3.1 | 6219N | 6219NR | 6219ZNR | | | | 109000 | 81500 | 14.4 | 3800 | 4500 | 107 | 158 | 185 | 2 | 8.4 | 2.62 | 6219N |
| | 200 | 45 | 3 | 0.5 | 193.65 | 5.69 | 3.5 | 212.9 | 3.1 | 6319N | 6319NR | 6319ZNR | | | | 153000 | 118000 | 13.3 | 3300 | 3900 | 109 | 186 | 215 | 2.5 | 8.4 | 5.67 | 6319N |
| 100 | 125 | 13 | 1 | 0.5 | 122.6 | 2.1 | 1.3 | 130.7 | 1.12 | 6820N | 6820NR | 6820ZNR | 19600 | 21200 | 16.0 | 4800 | 5600 | 105 | 120 | 132 | 1 | 2.9 | 0.320 | 6820N | | | |
| | 140 | 20 | 1.1 | 0.5 | 137.6 | 3.3 | 1.9 | 145.7 | 1.7 | 6920N | 6920NR | 6920ZNR | | | | 37000 | 36500 | 16.5 | 4500 | 5300 | 106 | 134 | 147 | 1 | 4.7 | 0.780 | 6920N |
| | 150 | 24 | 1.5 | 0.5 | 145.24 | 3.71 | 3.1 | 159.7 | 2.82 | 6020N | 6020NR | 6020ZNR | | | | 60000 | 54000 | 15.9 | 4300 | 5300 | 107 | 143 | 162 | 1.5 | 6.1 | 1.20 | 6020N |
| | 180 | 34 | 2.1 | 0.5 | 173.66 | 5.69 | 3.5 | 192.9 | 3.1 | 6220N | 6220NR | 6220ZNR | | | | 122000 | 93000 | 14.4 | 3600 | 4300 | 112 | 168 | 195 | 2 | 8.4 | 3.14 | 6220N |
| 105 | 130 | 13 | 1 | 0.5 | 127.6 | 2.1 | 1.3 | 135.7 | 1.12 | 6821N | 6821NR | 6821ZNR | 19900 | 21900 | 15.9 | 4800 | 5600 | 110 | 125 | 137 | 1 | 2.9 | 0.335 | 6821N | | | |
| | 145 | 20 | 1.1 | 0.5 | 142.6 | 3.3 | 1.9 | 150.7 | 1.7 | 6921N | 6921NR | 6921ZNR | | | | 42500 | 42000 | 16.4 | 4300 | 5300 | 111 | 139 | 152 | 1 | 4.7 | 0.803 | 6921N |
| | 160 | 26 | 2 | 0.5 | 155.22 | 3.71 | 3.1 | 169.7 | 2.82 | 6021N | 6021NR | 6021ZNR | | | | 72500 | 65500 | 15.8 | 4000 | 4800 | 113 | 152 | 172 | 2 | 6.1 | 1.54 | 6021N |
| | 190 | 36 | 2.1 | 0.5 | 183.64 | 5.69 | 3.5 | 202.9 | 3.1 | 6221N | 6221NR | 6221ZNR | | | | 133000 | 104000 | 14.3 | 3400 | 4000 | 117 | 178 | 205 | 2 | 8.4 | 3.76 | 6221N |
| 110 | 140 | 16 | 1 | 0.5 | 137.6 | 2.5 | 1.9 | 145.7 | 1.7 | 6822N | 6822NR | 6822ZNR | 27300 | 29400 | 16.9 | 4300 | 5300 | 115 | 135 | 147 | 1 | 3.9 | 0.526 | 6822N | | | |
| | 150 | 20 | 1.1 | 0.5 | 147.6 | 3.3 | 1.9 | 155.7 | 1.7 | 6922N | 6922NR | 6922ZNR | | | | 38000 | 38500 | 16.4 | 4300 | 5000 | 116 | 144 | 157 | 1 | 4.7 | 0.846 | 6922N |
| | 170 | 28 | 2 | 0.5 | 163.65 | 3.71 | 3.5 | 182.9 | 3.1 | 6022N | 6022NR | 6022ZNR | | | | 84500 | 73000 | 15.5 | 3800 | 4500 | 118 | 162 | 185 | 2 | 6.4 | 1.91 | 6022N |
| | 200 | 38 | 2.1 | 0.5 | 193.65 | 5.69 | 3.5 | 212.9 | 3.1 | 6222N | 6222NR | 6222ZNR | | | | 144000 | 117000 | 14.3 | 3200 | 3800 | 122 | 188 | 215 | 2 | 8.4 | 4.36 | 6222N |
| 120 | 150 | 16 | 1 | 0.5 | 147.6 | 2.5 | 1.9 | 155.7 | 1.7 | 6824N | 6824NR | 6824ZNR | 28300 | 31500 | 16.0 | 4000 | 4800 | 125 | 145 | 157 | 1 | 3.9 | 0.567 | 6824N | | | |
| | 165 | 22 | 1.1 | 0.5 | 161.8 | 3.7 | 1.9 | 171.5 | 1.7 | 6924N | 6924NR | 6924ZNR | | | | 53000 | 54000 | 16.5 | 3800 | 4600 | 126 | 159 | 173 | 1 | 5.1 | 1.15 | 6924N |
| | 180 | 28 | 2 | 0.5 | 173.66 | 3.71 | 3.5 | 192.9 | 3.1 | 6024N | 6024NR | 6024ZNR | | | | 88000 | 79500 | 15.7 | 3600 | 4300 | 128 | 172 | 195 | 2 | 6.4 | 2.36 | 6024N |
| 130 | 165 | 18 | 1.1 | 0.5 | 161.8 | 3.3 | 1.9 | 171.5 | 1.7 | 6826N | 6826NR | 6826ZNR | 37000 | 41000 | 16.1 | 3700 | 4400 | 136 | 158 | 173 | 1 | 4.7 | 0.815 | 6826N | | | |
| | 180 | 24 | 1.5 | 0.5 | 176.8 | 3.7 | 1.9 | 186.5 | 1.7 | 6926N | 6926NR | 6926ZNR | | | | 65000 | 67000 | 16.4 | 3500 | 4200 | 137 | 173 | 188 | 1.5 | 5.1 | 1.81 | 6926N |
| | 200 | 33 | 2 | 0.5 | 193.65 | 5.69 | 3.5 | 212.9 | 3.1 | 6026N | 6026NR | 6026ZNR | | | | 106000 | 101000 | 15.7 | 3200 | 3800 | 138 | 192 | 215 | 2 | 8.4 | 3.60 | 6026N |

Note: (¹) Bearing No. ZE means one shield type, two shields type is also available.

Remark: Dimensions of snap ring groove and snap ring are shown on pages 45 to 48.