

## Bore Diameter 80 – 105 mm

## Dynamic Equivalent Load

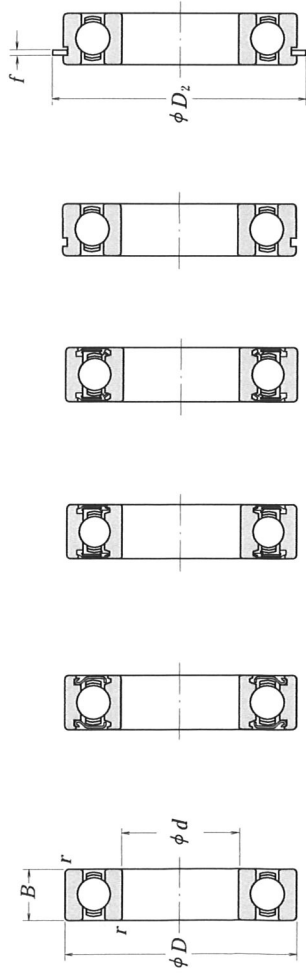
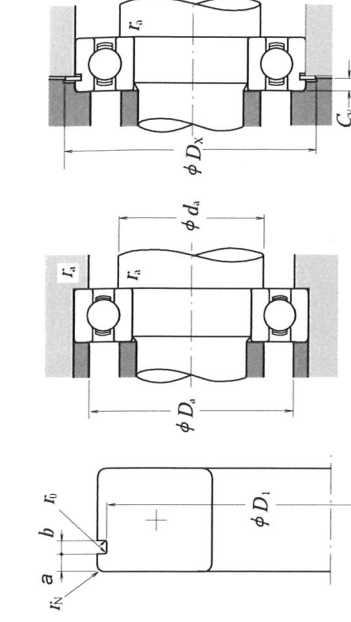
$$P = XF_r + YF_a$$

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

## Static Equivalent Load

$$\frac{F_a}{F_r} > 0.8, P_0 = 0.6F_r + 0.5F_a$$

$$\frac{F_a}{F_r} \leq 0.8, P_0 = F_r$$



Open Type

Shielded Type  
ZZNon-Contact  
Sealed Type  
VVWith Snap  
Ring Groove  
NWith Snap  
Ring  
NR

| d   | Boundary Dimensions (mm) |    |                  | Basic Load Ratings (N) |                 |                | Limiting Speeds (min <sup>-1</sup> ) |                  |                            | Bearing Numbers |          |        |
|-----|--------------------------|----|------------------|------------------------|-----------------|----------------|--------------------------------------|------------------|----------------------------|-----------------|----------|--------|
|     | D                        | B  | r <sub>min</sub> | C <sub>i</sub>         | C <sub>0r</sub> | C <sub>r</sub> | Grease<br>Open<br>Z                  | Oil<br>Open<br>Z | Sealed<br>Type<br>DD · DDU | Open            | Shielded | Sealed |
| 80  | 100                      | 10 | 0.6              | 12 700                 | 14 500          | 1 290          | 6 000                                | 3 400            | 6 000                      | VV              | DDU      | DDU    |
|     | 110                      | 16 | 1                | 25 000                 | 24 000          | 2 540          | 5 600                                | 3 200            | 5 600                      | VV              | DDU      | DDU    |
|     | 125                      | 14 | 0.6              | 32 000                 | 29 600          | 3 250          | 5 300                                | —                | 5 300                      | VV              | DDU      | DDU    |
|     | 125                      | 22 | 1.1              | 47 500                 | 40 000          | 4 850          | 5 300                                | 3 200            | 4 800                      | VV              | DDU      | DDU    |
|     | 140                      | 26 | 2                | 72 500                 | 53 000          | 7 400          | 4 500                                | 3 000            | 4 500                      | VV              | DDU      | DDU    |
| 85  | 170                      | 39 | 2.1              | 123 000                | 86 500          | 12 500         | 4 000                                | 2 800            | 4 000                      | VV              | DDU      | DDU    |
|     | 110                      | 13 | 1                | 18 700                 | 20 000          | 1 910          | 5 600                                | 3 200            | 5 600                      | VV              | DDU      | DDU    |
|     | 120                      | 18 | 1.1              | 32 000                 | 29 600          | 3 250          | 5 300                                | 3 000            | 5 300                      | VV              | DDU      | DDU    |
|     | 130                      | 14 | 0.6              | 33 000                 | 31 500          | 3 350          | 5 000                                | —                | 5 000                      | VV              | DDU      | DDU    |
|     | 130                      | 22 | 1.1              | 49 500                 | 43 000          | 5 050          | 5 000                                | 3 000            | 5 000                      | VV              | DDU      | DDU    |
| 90  | 150                      | 28 | 2                | 84 000                 | 62 000          | 8 550          | 4 300                                | 2 800            | 4 300                      | VV              | DDU      | DDU    |
|     | 180                      | 41 | 3                | 133 000                | 97 000          | 13 500         | 3 800                                | 2 600            | 3 800                      | VV              | DDU      | DDU    |
|     | 110                      | 13 | 1                | 19 000                 | 21 000          | 1 940          | 5 300                                | 3 000            | 5 300                      | VV              | DDU      | DDU    |
|     | 125                      | 18 | 1.1              | 33 000                 | 31 500          | 3 350          | 5 000                                | 2 800            | 5 000                      | VV              | DDU      | DDU    |
|     | 140                      | 16 | 1                | 41 500                 | 39 500          | 4 250          | 4 800                                | —                | 4 800                      | VV              | DDU      | DDU    |
| 95  | 140                      | 24 | 1.5              | 58 000                 | 50 000          | 5 950          | 4 800                                | 2 800            | 4 800                      | VV              | DDU      | DDU    |
|     | 160                      | 30 | 2                | 96 000                 | 71 500          | 9 800          | 4 000                                | 2 600            | 4 000                      | VV              | DDU      | DDU    |
|     | 190                      | 43 | 3                | 143 000                | 107 000         | 14 500         | 3 600                                | 2 400            | 3 600                      | VV              | DDU      | DDU    |
|     | 120                      | 13 | 1                | 19 300                 | 22 000          | 1 970          | 5 000                                | 2 800            | 5 000                      | VV              | DDU      | DDU    |
|     | 130                      | 18 | 1.1              | 33 500                 | 33 500          | 3 450          | 4 800                                | 2 800            | 4 800                      | VV              | DDU      | DDU    |
| 100 | 145                      | 16 | 1                | 43 000                 | 42 000          | 4 350          | 4 500                                | —                | 4 500                      | VV              | DDU      | DDU    |
|     | 145                      | 24 | 1.5              | 60 500                 | 54 000          | 6 150          | 4 500                                | 2 600            | 4 500                      | VV              | DDU      | DDU    |
|     | 170                      | 32 | 2.1              | 109 000                | 82 000          | 11 100         | 3 800                                | 2 600            | 3 800                      | VV              | DDU      | DDU    |
|     | 200                      | 45 | 3                | 153 000                | 119 000         | 15 600         | 3 000                                | 2 400            | 3 000                      | VV              | DDU      | DDU    |
|     | 125                      | 13 | 1                | 19 600                 | 23 000          | 2 000          | 4 800                                | 2 800            | 4 800                      | VV              | DDU      | DDU    |
| 105 | 140                      | 20 | 1.1              | 43 000                 | 42 000          | 4 350          | 4 500                                | 2 600            | 4 500                      | VV              | DDU      | DDU    |
|     | 150                      | 16 | 1                | 42 500                 | 42 000          | 4 300          | 4 300                                | —                | 4 300                      | VV              | DDU      | DDU    |
|     | 150                      | 24 | 1.5              | 60 500                 | 54 000          | 6 150          | 4 300                                | 2 600            | 4 300                      | VV              | DDU      | DDU    |
|     | 180                      | 34 | 2.1              | 122 000                | 93 000          | 12 500         | 3 600                                | 2 400            | 3 600                      | VV              | DDU      | DDU    |
|     | 215                      | 47 | 3                | 173 000                | 141 000         | 17 700         | 2 800                                | 2 000            | 2 800                      | VV              | DDU      | DDU    |
| 110 | 130                      | 13 | 1                | 19 800                 | 23 900          | 2 020          | 4 800                                | 2 600            | 4 800                      | VV              | DDU      | DDU    |
|     | 145                      | 20 | 1.1              | 42 500                 | 42 000          | 4 300          | 4 300                                | —                | 4 300                      | VV              | DDU      | DDU    |
|     | 160                      | 18 | 1                | 52 000                 | 50 500          | 5 300          | 4 000                                | —                | 4 000                      | VV              | DDU      | DDU    |
|     | 160                      | 26 | 2                | 72 500                 | 66 000          | 7 400          | 4 000                                | 2 400            | 4 000                      | VV              | DDU      | DDU    |
|     | 190                      | 36 | 2.1              | 133 000                | 105 000         | 13 600         | 3 400                                | 2 200            | 3 400                      | VV              | DDU      | DDU    |
| 125 | 49                       | 3  | 184 000          | 154 000                | 18 700          | 2 600          | 2 000                                | 2 000            | 2 600                      | VV              | DDU      | DDU    |

Notes (1) For tolerances for the snap ring grooves and snap ring dimensions, refer to Pages A50 to A53.

(2) When heavy axial loads are applied, increase  $d_f$  and decrease  $D_a$  from the above values.

| With Snap Ring Groove | Snap Ring Groove Dimensions (mm) |     |                | Snap Ring Dimensions (mm) |                |       | Abutment and Fillet Dimensions (mm) |                |                | Mass (kg) | approx. |
|-----------------------|----------------------------------|-----|----------------|---------------------------|----------------|-------|-------------------------------------|----------------|----------------|-----------|---------|
|                       | a                                | b   | d <sub>1</sub> | r <sub>0</sub>            | r <sub>1</sub> | f     | d <sub>2</sub>                      | r <sub>2</sub> | D <sub>2</sub> |           |         |
| N                     | 1.7                              | 1.3 | 97.9           | 0.4                       | 0.5            | 104.4 | 84.5                                | 96             | 106            | 2.5       | 0.151   |
| NR                    | 2.5                              | 1.3 | 107.6          | 0.4                       | 0.5            | 115.7 | 87.5                                | 105            | 117            | 3.3       | 0.391   |
| N                     | —                                | —   | —              | —                         | —              | —     | 84                                  | 121            | —              | —         | 0.621   |
| N                     | 2.87                             | 3.1 | 120.22         | 0.6                       | 0.5            | 134.7 | 91                                  | 118.5          | 136.5          | 5.3       | 0.872   |
| NR                    | 4.9                              | 3.1 | 135.23         | 0.6                       | 0.5            | 149.7 | 95.5                                | 131            | 152            | 7.3       | 1.42    |
| N                     | 5.69                             | 3.5 | 163.65         | 0.6                       | 0.5            | 182.9 | 91                                  | 104.5          | 185            | 8.4       | 3.67    |
| N                     | —                                | —   | —              | —                         | —              | —     | 90                                  | 105            | 117            | 2.9       | 0.263   |
| NR                    | 2.1                              | 1.3 | 107.6          | 0.4                       | 0.5            | 115.7 | 90.5                                | 105            | 127            | 4.1       | 0.55    |
| N                     | 3.3                              | 1.3 | 117.6          | 0.4                       | 0.5            | 125.7 | 91.5                                | 113.5          | —              | —         | 0.652   |
| N                     | —                                | —   | —              | —                         | —              | —     | 89                                  | 126            | —              | —         | 0.918   |
| NR                    | 2.87                             | 3.1 | 125.22         | 0.6                       | 0.5            | 139.7 | 91.5                                | 123.5          | 141.5          | 5.3       | 0.918   |
| NR                    | 4.9                              | 3.1 | 145.24         | 0.6                       | 0.5            | 159.7 | 94                                  | 141            | 162            | 7.3       | 1.76    |
| N                     | 5.69                             | 3.5 | 173.66         | 0.6                       | 0.5            | 192.9 | 98                                  | 110.5          | 195            | 8.4       | 4.28    |
| N                     | —                                | —   | —              | —                         | —              | —     | 95                                  | 110            | 122            | 2.9       | 0.276   |
| NR                    | 2.1                              | 1.3 | 112.6          | 0.4                       | 0.5            | 120.7 | 95                                  | 118.5          | 132            | 4.1       | 0.585   |
| N                     | 3.3                              | 1.3 | 122.6          | 0.4                       | 0.5            | 130.7 | 96.5                                | 126            | —              | —         | 0.873   |
| N                     | —                                | —   | —              | —                         | —              | —     | 98                                  | 132            | 152            | 6.1       | 1.19    |
| NR                    | 3.71                             | 3.1 | 135.23         | 0.6                       | 0.5            | 149.7 | 103                                 | 132            | 172            | 7.3       | 2.18    |
| NR                    | 4.9                              | 3.1 | 155.22         | 0.6                       | 0.5            | 169.7 | 107.5                               | 151            | 205            | 8.4       | 4.98    |
| N                     | 5.69                             | 3.5 | 183.64         | 0.6                       | 0.5            | 202.9 | 103                                 | 117            | 205            | —         | —       |
| N                     | —                                | —   | —              | —                         | —              | —     | 100                                 | 115            | 127            | 2.9       | 0.297   |
| NR                    | 2.1                              | 1.3 | 117.6          | 0.4                       | 0.5            | 125.7 | 101.5                               | 123.5          | 137            | 4.1       | 0.601   |
| N                     | 3.3                              | 1.3 | 127.6          | 0.4                       | 0.5            | 135.7 | 101.5                               | 133.5          | —              | —         | 0.904   |
| N                     | —                                | —   | —              | —                         | —              | —     | 100                                 | 140            | 157            | 6.1       | 1.23    |
| NR                    | 3.71                             | 3.1 | 140.23         | 0.6                       | 0.5            | 154.7 | 103                                 | 137            | 185            | 8.4       | 2.64    |
| NR                    | 5.69                             | 3.5 | 163.65         | 0.6                       | 0.5            | 182.9 | 106                                 | 159            | 215            | 8.4       | 5.76    |
| N                     | 5.69                             | 3.5 | 193.65         | 0.6                       | 0.5            | 212.9 | 108                                 | 123.5          | 215            | —         | —       |
| N                     | —                                | —   | —              | —                         | —              | —     | 105                                 | 120            | 132            | 2.9       | 0.31    |
| NR                    | 2.1                              | 1.3 | 122.6          | 0.4                       | 0.5            | 130.7 | 105                                 | 105.5          | 147            | 4.7       | 0.828   |
| N                     | 3.3                              | 1.9 | 137.6          | 0.6                       | 0.5            | 145.7 | 106.5                               | 133.5          | —              | —         | 0.945   |
| N                     | —                                | —   | —              | —                         | —              | —     | 105                                 | 145            | 162            | 6.1       | 1.29    |
| NR                    | 3.71                             | 3.1 | 145.24         | 0.6                       | 0.5            | 159.7 | 108                                 | 142            | 195            | 8.4       | 3.17    |
| NR                    | 5.69                             | 3.5 | 173.66         | 0.6                       | 0.5            | 192.9 | 111                                 | 169            | 215            | —         | —       |
| N                     | —                                | —   | —              | —                         | —              | —     | 113                                 | 133            | 202            | 2.5       | 7.04    |
| N                     | —                                | —   | —              | —                         | —              | —     | —                                   | 125            | —              | —         | —       |
| NR                    | 2.1                              | 1.3 | 127.6          | 0.4                       | 0.5            | 135.7 | 110                                 | 110.5          | 137            | 2.9       | 0.324   |
| N                     | 3.3                              | 1.9 | 142.6          | 0.6                       | 0.5            | 150.7 | 111.5                               | 116            | 152            | 4.7       | 0.856   |
| N                     | —                                | —   | —              | —                         | —              | —     | 110                                 | 155            | 172            | 6.1       | 1.58    |
| NR                    | 3.71                             | 3.1 | 155.22         | 0.6                       | 0.5            | 169.7 | 114                                 | 151            | 205            | 8.4       | 3.79    |
| NR                    | 5.69                             | 3.5 | 183.64         | 0.6                       | 0.5            | 202.9 | 116                                 | 179            | 220            | —         | —       |
| N                     | —                                | —   | —              | —                         | —              | —     | 118                                 | 138            | 212            | 2.5       | 8.09    |

Remarks 1. Diameter Series 7 (extra thin section bearings) are also available, please contact NSK.

2. When using bearings with rotating outer rings, contact NSK if they are sealed, shielded, or have snap rings.

3. Please consult NSK about the snap ring groove dimensions of sealed and shielded bearings when the diameter of dimension series 18 and 19 is 50 mm or more.