



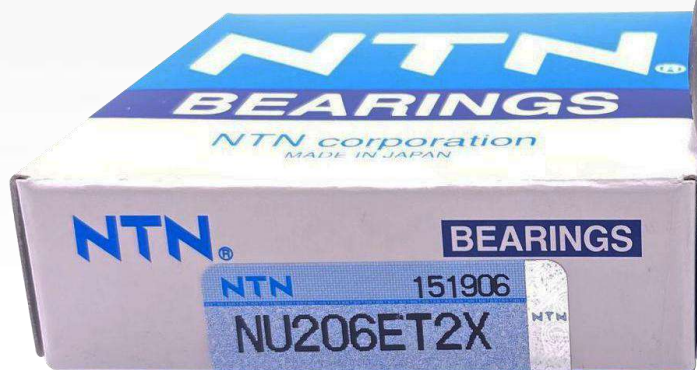
**Shaanxi Gainhui Heavy Industries Co., Ltd.**  
Bearing Manufacturer And Supplier In China

## **BECAUSE WE ARE FOCUSED WE ARE PROFESSIONAL**

We are committed to providing competitive bearing products and OEM services to global customers.



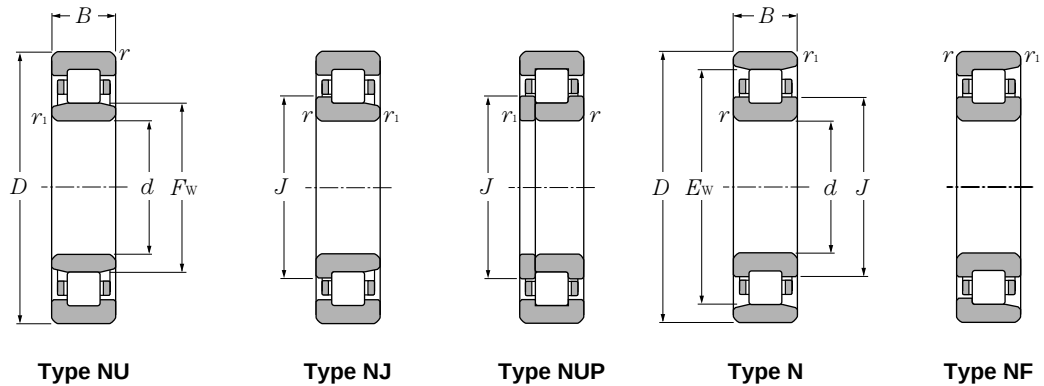
### **NTN Roller Bearings**



### **Bearing Series:**

**N series, NU series,  
NJ series, NUP series**



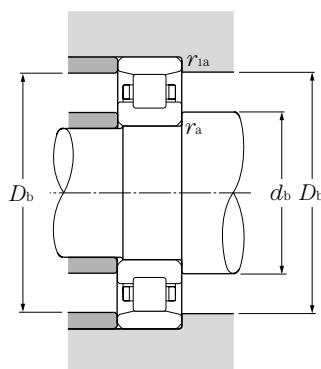
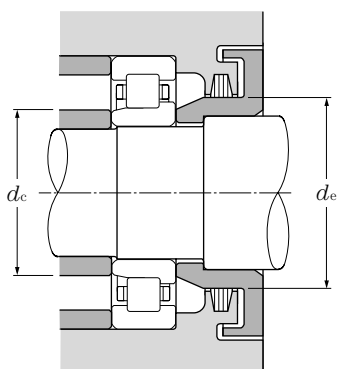
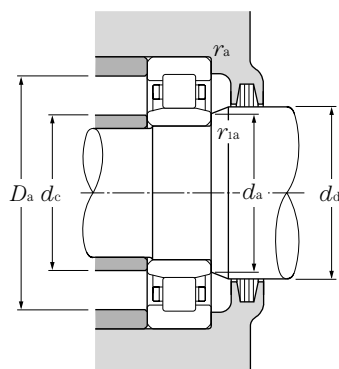


**d 20~35mm**

| Boundary dimensions |     |    |                                 |                                  | Basic load ratings |                 |                |                 | Limiting speeds <sup>①</sup> |        | Bearing numbers |            |             |           |
|---------------------|-----|----|---------------------------------|----------------------------------|--------------------|-----------------|----------------|-----------------|------------------------------|--------|-----------------|------------|-------------|-----------|
| mm                  |     |    |                                 |                                  | dynamic            | static          | dynamic        | static          | rpm                          |        | type<br>NU      | type<br>NJ | type<br>NUP | type<br>N |
| d                   | D   | B  | r <sub>s</sub> min <sup>②</sup> | r <sub>1s</sub> min <sup>②</sup> | C <sub>r</sub>     | C <sub>or</sub> | C <sub>r</sub> | C <sub>or</sub> | grease                       | oil    |                 |            |             |           |
| 20                  | 47  | 14 | 1                               | 0.6                              | 25.7               | 22.6            | 2,620          | 2,310           | 15,000                       | 18,000 | NU204E          | NJ         | NUP         | N         |
|                     | 47  | 18 | 1                               | 0.6                              | 30.5               | 28.3            | 3,100          | 2,890           | 14,000                       | 16,000 | NU2204E         | NJ         | NUP         | N         |
|                     | 52  | 15 | 1.1                             | 0.6                              | 31.5               | 26.9            | 3,200          | 2,740           | 13,000                       | 15,000 | NU304E          | NJ         | NUP         | N         |
|                     | 52  | 21 | 1.1                             | 0.6                              | 42.0               | 39.0            | 4,300          | 3,950           | 12,000                       | 14,000 | NU2304E         | NJ         | NUP         | N         |
| 25                  | 47  | 12 | 0.6                             | 0.3                              | 15.1               | 14.1            | 1,540          | 1,430           | 16,000                       | 19,000 | NU1005          | NJ         | NUP         | N         |
|                     | 52  | 15 | 1                               | 0.6                              | 29.3               | 27.7            | 2,990          | 2,830           | 13,000                       | 15,000 | NU205E          | NJ         | NUP         | N         |
|                     | 52  | 18 | 1                               | 0.6                              | 35.0               | 34.5            | 3,550          | 3,550           | 11,000                       | 13,000 | NU2205E         | NJ         | NUP         | N         |
|                     | 62  | 17 | 1.1                             | 1.1                              | 41.5               | 37.5            | 4,250          | 3,800           | 11,000                       | 13,000 | NU305E          | NJ         | NUP         | N         |
|                     | 62  | 24 | 1.1                             | 1.1                              | 57.0               | 56.0            | 5,800          | 5,700           | 9,700                        | 11,000 | NU2305E         | NJ         | NUP         | N         |
|                     | 80  | 21 | 1.5                             | 1.5                              | 46.5               | 40.0            | 4,750          | 4,050           | 8,500                        | 10,000 | NU405           | NJ         | NUP         | N         |
| 30                  | 55  | 13 | 1                               | 0.6                              | 19.7               | 19.6            | 2,000          | 2,000           | 14,000                       | 16,000 | NU1006          | NJ         | NUP         | N         |
|                     | 62  | 16 | 1                               | 0.6                              | 39.0               | 37.5            | 4,000          | 3,800           | 11,000                       | 13,000 | NU206E          | NJ         | NUP         | N         |
|                     | 62  | 20 | 1                               | 0.6                              | 49.0               | 50.0            | 5,000          | 5,100           | 9,700                        | 11,000 | NU2206E         | NJ         | NUP         | N         |
|                     | 72  | 19 | 1.1                             | 1.1                              | 53.0               | 50.0            | 5,400          | 5,100           | 9,300                        | 11,000 | NU306E          | NJ         | NUP         | N         |
|                     | 72  | 27 | 1.1                             | 1.1                              | 74.5               | 77.5            | 7,600          | 7,900           | 8,300                        | 9,700  | NU2306E         | NJ         | NUP         | N         |
|                     | 90  | 23 | 1.5                             | 1.5                              | 62.5               | 55.0            | 6,400          | 5,600           | 7,300                        | 8,500  | NU406           | NJ         | NUP         | N         |
| 35                  | 62  | 14 | 1                               | 0.6                              | 22.6               | 23.2            | 2,310          | 2,360           | 12,000                       | 15,000 | NU1007          | NJ         | NUP         | N         |
|                     | 72  | 17 | 1.1                             | 0.6                              | 50.5               | 50.0            | 5,150          | 5,100           | 9,500                        | 11,000 | NU207E          | NJ         | NUP         | N         |
|                     | 72  | 23 | 1.1                             | 0.6                              | 61.5               | 65.5            | 6,300          | 6,650           | 8,500                        | 10,000 | NU2207E         | NJ         | NUP         | N         |
|                     | 80  | 21 | 1.5                             | 1.1                              | 71.0               | 71.0            | 7,200          | 7,200           | 8,100                        | 9,600  | NU307E          | NJ         | NUP         | N         |
|                     | 80  | 31 | 1.5                             | 1.1                              | 99.0               | 109             | 10,100         | 11,100          | 7,200                        | 8,500  | NU2307E         | NJ         | NUP         | N         |
|                     | 100 | 25 | 1.5                             | 1.5                              | 75.5               | 69.0            | 7,700          | 7,050           | 6,400                        | 7,500  | NU407           | NJ         | NUP         | N         |
| 40                  | 68  | 15 | 1                               | 0.6                              | 27.3               | 29.0            | 2,780          | 2,950           | 11,000                       | 13,000 | NU1008          | NJ         | NUP         | N         |
|                     | 80  | 18 | 1.1                             | 1.1                              | 43.5               | 43.0            | 4,450          | 4,350           | 9,400                        | 11,000 | NU208           | NJ         | NUP         | N         |
|                     | 80  | 18 | 1.1                             | 1.1                              | 55.5               | 55.5            | 5,700          | 5,650           | 8,500                        | 10,000 | NU208E          | NJ         | NUP         | —         |
|                     | 80  | 23 | 1.1                             | 1.1                              | 58.0               | 62.0            | 5,950          | 6,300           | 8,500                        | 10,000 | NU2208          | NJ         | NUP         | N         |
|                     | 80  | 23 | 1.1                             | 1.1                              | 72.5               | 77.5            | 7,400          | 7,900           | 7,600                        | 8,900  | NU2208E         | NJ         | NUP         | —         |
|                     | 90  | 23 | 1.5                             | 1.5                              | 58.5               | 57.0            | 6,000          | 5,800           | 8,000                        | 9,400  | NU308           | NJ         | NUP         | N         |
|                     | 90  | 23 | 1.5                             | 1.5                              | 83.0               | 81.5            | 8,500          | 8,300           | 7,200                        | 8,500  | NU308E          | NJ         | NUP         | —         |
|                     | 90  | 33 | 1.5                             | 1.5                              | 82.5               | 88.0            | 8,400          | 8,950           | 7,000                        | 8,200  | NU2308          | NJ         | NUP         | N         |
|                     | 90  | 33 | 1.5                             | 1.5                              | 114                | 122             | 11,600         | 12,500          | 6,400                        | 7,500  | NU2308E         | NJ         | NUP         | —         |
|                     | 110 | 27 | 2                               | 2                                | 95.5               | 89.0            | 9,750          | 9,100           | 5,700                        | 6,700  | NU408           | NJ         | NUP         | N         |

① This value achieved with machined cages; when pressed cages are used, 80% of this value is acceptable.

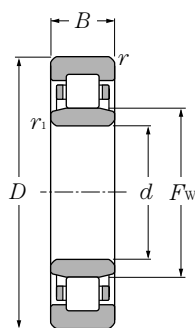
② Minimal allowable dimension for chamfer dimension  $r$  or  $r_1$ .



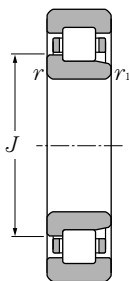
**Equivalent bearing load**  
**dynamic**  
 $P_r = F_r$   
**static**  
 $P_{or} = F_r$

| Dimensions |       |       |      | Abutment and fillet dimensions |              |              |              |              |              |              |                           |                 |                  | Mass                 |        |
|------------|-------|-------|------|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------------------|-----------------|------------------|----------------------|--------|
| type       | mm    |       |      | mm                             |              |              |              |              |              |              |                           |                 |                  | kg                   |        |
| NF         | $F_w$ | $E_w$ | $J$  | $d_a$<br>min                   | $d_b$<br>min | $d_c$<br>max | $d_d$<br>min | $d_e$<br>min | $D_a$<br>max | $D_b$<br>max | $d_b$<br>min <sup>④</sup> | $r_{as}$<br>max | $r_{1as}$<br>max | type NU<br>(approx.) | type N |
| —          | 26.5  | —     | 29.5 | 24                             | —            | 26           | 29           | 32           | 42           | —            | —                         | 1               | 0.6              | 0.122                | —      |
| —          | 26.5  | —     | 29.5 | 24                             | —            | 26           | 29           | 32           | 42           | —            | —                         | 1               | 0.6              | 0.158                | —      |
| —          | 27.5  | —     | 31.1 | 24                             | —            | 27           | 30           | 33           | 45.5         | —            | —                         | 1               | 0.6              | 0.176                | —      |
| —          | 27.5  | —     | 31.1 | 24                             | —            | 27           | 30           | 33           | 45.5         | —            | —                         | 1               | 0.6              | 0.242                | —      |
| —          | 30.5  | 41.5  | 32.7 | 27                             | 29           | 30           | 32           | 33           | 43           | 45           | 42.5                      | 0.6             | 0.3              | 0.092                | 0.091  |
| —          | 31.5  | —     | 34.5 | 29                             | —            | 31           | 34           | 37           | 47           | —            | —                         | 1               | 0.6              | 0.151                | —      |
| —          | 31.5  | —     | 34.5 | 29                             | —            | 31           | 34           | 37           | 47           | —            | —                         | 1               | 0.6              | 0.186                | —      |
| —          | 34    | —     | 38   | 31.5                           | —            | 33           | 37           | 40           | 55.5         | —            | —                         | 1               | 1                | 0.275                | —      |
| —          | 34    | —     | 38   | 31.5                           | —            | 33           | 37           | 40           | 55.5         | —            | —                         | 1               | 1                | 0.386                | —      |
| NF         | 38.8  | 62.8  | 43.6 | 33                             | 33           | 38           | 41           | 46           | 72           | 72           | 64                        | 1.5             | 1.5              | 0.55                 | 0.536  |
| —          | 36.5  | 48.5  | 38.9 | 34                             | 35           | 35           | 38           | 39.5         | 50           | 51           | 49.5                      | 1               | 0.6              | 0.13                 | 0.128  |
| —          | 37.5  | —     | 41.1 | 34                             | —            | 37           | 40           | 44           | 57           | —            | —                         | 1               | 0.6              | 0.226                | —      |
| —          | 37.5  | —     | 41.1 | 34                             | —            | 37           | 40           | 44           | 57           | —            | —                         | 1               | 0.6              | 0.297                | —      |
| —          | 40.5  | —     | 44.9 | 36.5                           | —            | 40           | 44           | 48           | 65.5         | —            | —                         | 1               | 1                | 0.398                | —      |
| —          | 40.5  | —     | 44.9 | 36.5                           | —            | 40           | 44           | 48           | 65.5         | —            | —                         | 1               | 1                | 0.58                 | —      |
| NF         | 45    | 73    | 50.5 | 38                             | 38           | 44           | 47           | 52           | 82           | 82           | 74                        | 1.5             | 1.5              | 0.751                | 0.732  |
| —          | 42    | 55    | 44.6 | 39                             | 40           | 41           | 44           | 45           | 57           | 58           | 56                        | 1               | 0.6              | 0.179                | 0.176  |
| —          | 44    | —     | 48   | 39                             | —            | 43           | 46           | 50           | 65.5         | —            | —                         | 1               | 0.6              | 0.327                | —      |
| —          | 44    | —     | 48   | 39                             | —            | 43           | 46           | 50           | 65.5         | —            | —                         | 1               | 0.6              | 0.455                | —      |
| —          | 46.2  | —     | 51   | 41.5                           | —            | 45           | 48           | 53           | 72           | —            | —                         | 1.5             | 1                | 0.545                | —      |
| —          | 46.2  | —     | 51   | 41.5                           | —            | 45           | 48           | 53           | 72           | —            | —                         | 1.5             | 1                | 0.78                 | —      |
| NF         | 53    | 83    | 59   | 43                             | 43           | 52           | 55           | 61           | 92           | 92           | 84                        | 1.5             | 1.5              | 0.99                 | 0.965  |
| —          | 47    | 61    | 49.8 | 44                             | 45           | 46           | 49           | 50.5         | 63           | 64           | 62                        | 1               | 0.6              | 0.22                 | 0.217  |
| NF         | 50    | 70    | 54.2 | 46.5                           | 46.5         | 49           | 52           | 56           | 73.5         | 73.5         | 72                        | 1               | 1                | 0.378                | 0.37   |
| —          | 49.5  | —     | 53.9 | 46.5                           | —            | 49           | 52           | 56           | 73.5         | —            | —                         | 1               | 1                | 0.426                | —      |
| —          | 50    | 70    | 54.2 | 46.5                           | 46.5         | 49           | 52           | 56           | 73.5         | 73.5         | 72                        | 1               | 1                | 0.49                 | 0.48   |
| —          | 49.5  | —     | 53.9 | 46.5                           | —            | 49           | 52           | 56           | 73.5         | —            | —                         | 1               | 1                | 0.552                | —      |
| NF         | 53.5  | 77.5  | 58.4 | 48                             | 48           | 51           | 55           | 60           | 82           | 82           | 80                        | 1.5             | 1.5              | 0.658                | 0.643  |
| —          | 52    | —     | 57.6 | 48                             | —            | 51           | 55           | 60           | 82           | —            | —                         | 1.5             | 1.5              | 0.754                | —      |
| —          | 53.5  | 77.5  | 58.4 | 48                             | 48           | 51           | 55           | 60           | 82           | 82           | 80                        | 1.5             | 1.5              | 0.951                | 0.932  |
| —          | 52    | —     | 57.6 | 48                             | —            | 51           | 55           | 60           | 82           | —            | —                         | 1.5             | 1.5              | 1.06                 | —      |
| NF         | 58    | 92    | 64.8 | 49                             | 49           | 57           | 60           | 67           | 101          | 101          | 93                        | 2               | 2                | 1.3                  | 1.27   |

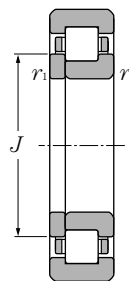
④ Does not apply to side of the outer ring rib of type NF bearings.



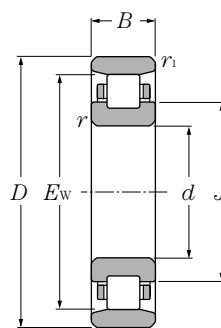
Type NU



Type NJ



Type NUP



Type N



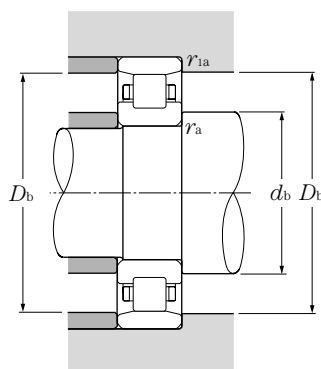
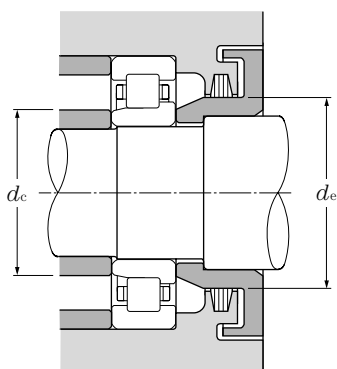
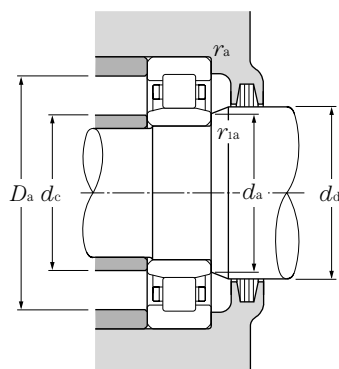
Type NF

**d 35~55mm**

| Boundary dimensions |     |    |                                 |                                  | Basic load ratings |                 |                |                 | Limiting speeds <sup>①</sup> |        | Bearing numbers |            |             |           |
|---------------------|-----|----|---------------------------------|----------------------------------|--------------------|-----------------|----------------|-----------------|------------------------------|--------|-----------------|------------|-------------|-----------|
| mm                  |     |    |                                 |                                  | dynamic            | static          | dynamic        | static          | rpm                          |        | type<br>NU      | type<br>NJ | type<br>NUP | type<br>N |
| d                   | D   | B  | r <sub>s</sub> min <sup>②</sup> | r <sub>1s</sub> min <sup>②</sup> | C <sub>r</sub>     | C <sub>or</sub> | C <sub>r</sub> | C <sub>or</sub> | grease                       | oil    |                 |            |             |           |
| 45                  | 75  | 16 | 1                               | 0.6                              | 31.0               | 34.0            | 3,200          | 3,450           | 9,900                        | 12,000 | NU1009          | NJ         | NUP         | N         |
|                     | 85  | 19 | 1.1                             | 1.1                              | 46.0               | 47.0            | 4,700          | 4,800           | 8,400                        | 9,900  | NU209           | NJ         | NUP         | N         |
|                     | 85  | 19 | 1.1                             | 1.1                              | 63.0               | 66.5            | 6,450          | 6,800           | 7,600                        | 9,000  | NU209E          | NJ         | NUP         | —         |
|                     | 85  | 23 | 1.1                             | 1.1                              | 61.5               | 68.0            | 6,250          | 6,900           | 7,600                        | 9,000  | NU2209          | NJ         | NUP         | N         |
|                     | 85  | 23 | 1.1                             | 1.1                              | 76.0               | 84.5            | 7,750          | 8,600           | 6,800                        | 8,000  | NU2209E         | NJ         | NUP         | —         |
|                     | 100 | 25 | 1.5                             | 1.5                              | 74.0               | 71.0            | 7,550          | 7,250           | 7,200                        | 8,400  | NU309           | NJ         | NUP         | N         |
|                     | 100 | 25 | 1.5                             | 1.5                              | 97.5               | 98.5            | 9,950          | 10,000          | 6,500                        | 7,600  | NU309E          | NJ         | NUP         | —         |
|                     | 100 | 36 | 1.5                             | 1.5                              | 99.0               | 104             | 10,100         | 10,600          | 6,300                        | 7,400  | NU2309          | NJ         | NUP         | N         |
|                     | 100 | 36 | 1.5                             | 1.5                              | 137                | 153             | 14,000         | 15,600          | 5,700                        | 6,800  | NU2309E         | NJ         | NUP         | —         |
|                     | 120 | 29 | 2                               | 2                                | 107                | 102             | 10,900         | 10,400          | 5,100                        | 6,000  | NU409           | NJ         | NUP         | N         |
| 50                  | 80  | 16 | 1                               | 0.6                              | 32.0               | 36.0            | 3,300          | 3,700           | 8,900                        | 11,000 | NU1010          | NJ         | NUP         | N         |
|                     | 90  | 20 | 1.1                             | 1.1                              | 48.0               | 51.0            | 4,900          | 5,200           | 7,600                        | 9,000  | NU210           | NJ         | NUP         | N         |
|                     | 90  | 20 | 1.1                             | 1.1                              | 66.0               | 72.0            | 6,750          | 7,350           | 6,900                        | 8,100  | NU210E          | NJ         | NUP         | —         |
|                     | 90  | 23 | 1.1                             | 1.1                              | 64.0               | 73.5            | 6,550          | 7,500           | 6,900                        | 8,100  | NU2210          | NJ         | NUP         | N         |
|                     | 90  | 23 | 1.1                             | 1.1                              | 79.5               | 91.5            | 8,100          | 9,350           | 6,200                        | 7,300  | NU2210E         | NJ         | NUP         | —         |
|                     | 110 | 27 | 2                               | 2                                | 87.0               | 86.0            | 8,850          | 8,800           | 6,500                        | 7,700  | NU310           | NJ         | NUP         | N         |
|                     | 110 | 27 | 2                               | 2                                | 110                | 113             | 11,200         | 11,500          | 5,900                        | 6,900  | NU310E          | NJ         | NUP         | —         |
|                     | 110 | 40 | 2                               | 2                                | 121                | 131             | 12,300         | 13,400          | 5,700                        | 6,700  | NU2310          | NJ         | NUP         | N         |
|                     | 110 | 40 | 2                               | 2                                | 163                | 187             | 16,600         | 19,000          | 5,200                        | 6,100  | NU2310E         | NJ         | NUP         | —         |
|                     | 130 | 31 | 2.1                             | 2.1                              | 129                | 124             | 13,200         | 12,600          | 4,700                        | 5,500  | NU410           | NJ         | NUP         | N         |
| 55                  | 90  | 18 | 1.1                             | 1                                | 37.5               | 44.0            | 3,850          | 4,450           | 8,200                        | 9,700  | NU1011          | NJ         | NUP         | N         |
|                     | 100 | 21 | 1.5                             | 1.1                              | 58.0               | 62.5            | 5,900          | 6,350           | 6,900                        | 8,200  | NU211           | NJ         | NUP         | N         |
|                     | 100 | 21 | 1.5                             | 1.1                              | 82.5               | 93.0            | 8,400          | 9,500           | 6,300                        | 7,400  | NU211E          | NJ         | NUP         | —         |
|                     | 100 | 25 | 1.5                             | 1.1                              | 75.5               | 87.0            | 7,700          | 8,900           | 6,300                        | 7,400  | NU2211          | NJ         | NUP         | N         |
|                     | 100 | 25 | 1.5                             | 1.1                              | 97.0               | 114             | 9,900          | 11,700          | 5,600                        | 6,600  | NU2211E         | NJ         | NUP         | —         |
|                     | 120 | 29 | 2                               | 2                                | 111                | 111             | 11,300         | 11,400          | 5,900                        | 7,000  | NU311           | NJ         | NUP         | N         |
|                     | 120 | 29 | 2                               | 2                                | 137                | 143             | 14,000         | 14,600          | 5,300                        | 6,300  | NU311E          | NJ         | NUP         | —         |
|                     | 120 | 43 | 2                               | 2                                | 148                | 162             | 15,100         | 16,500          | 5,200                        | 6,100  | NU2311          | NJ         | NUP         | N         |
|                     | 120 | 43 | 2                               | 2                                | 201                | 233             | 20,500         | 23,800          | 4,700                        | 5,600  | NU2311E         | NJ         | NUP         | —         |
|                     | 140 | 33 | 2.1                             | 2.1                              | 139                | 138             | 14,200         | 14,100          | 4,300                        | 5,000  | NU411           | NJ         | NUP         | N         |
| 60                  | 95  | 18 | 1.1                             | 1                                | 40.0               | 48.5            | 4,100          | 4,950           | 7,500                        | 8,800  | NU1012          | NJ         | NUP         | N         |
|                     | 110 | 22 | 1.5                             | 1.5                              | 68.5               | 75.0            | 7,000          | 7,650           | 6,400                        | 7,600  | NU212           | NJ         | NUP         | N         |
|                     | 110 | 22 | 1.5                             | 1.5                              | 97.5               | 107             | 9,950          | 10,900          | 5,800                        | 6,800  | NU212E          | NJ         | NUP         | —         |
|                     | 110 | 28 | 1.5                             | 1.5                              | 96.0               | 116             | 9,800          | 11,800          | 5,800                        | 6,800  | NU2212          | NJ         | NUP         | N         |

① This value achieved with machined cages; when pressed cages are used, 80% of this value is acceptable.

② Minimal allowable dimension for chamfer dimension  $r$  or  $r_1$ .

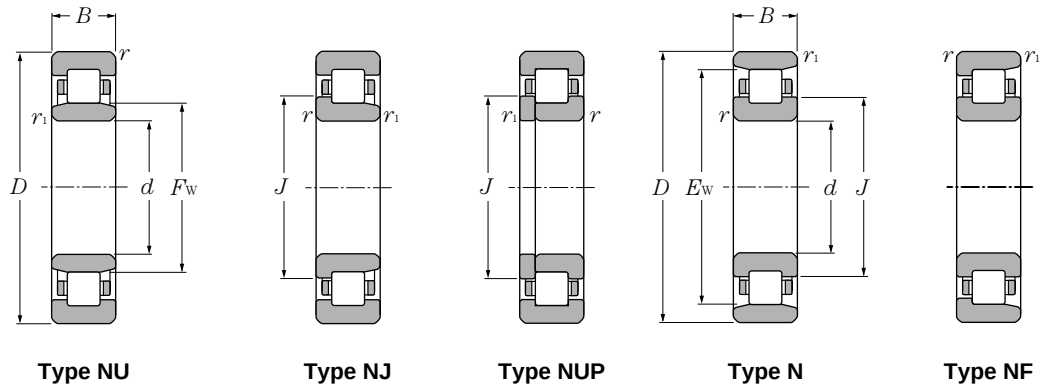


**Equivalent bearing load**  
**dynamic**  
 $P_r = F_r$   
**static**  
 $P_{or} = F_r$

| Dimensions |       |       |      | Abutment and fillet dimensions |              |              |              |              |              |              |                           |                 |                  | Mass                 |        |
|------------|-------|-------|------|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------------------|-----------------|------------------|----------------------|--------|
| type       | mm    |       |      | mm                             |              |              |              |              |              |              |                           |                 |                  | kg                   |        |
| NF         | $F_w$ | $E_w$ | $J$  | $d_a$<br>min                   | $d_b$<br>min | $d_c$<br>max | $d_d$<br>min | $d_e$<br>min | $D_a$<br>max | $D_b$<br>max | $d_b$<br>min <sup>④</sup> | $r_{as}$<br>max | $r_{1as}$<br>max | type NU<br>(approx.) | type N |
| —          | 52.5  | 67.5  | 55.5 | 49                             | 50           | 52           | 54           | 56           | 70           | 71           | 68.5                      | 1               | 0.6              | 0.28                 | 0.276  |
| NF         | 55    | 75    | 59   | 51.5                           | 51.5         | 54           | 57           | 61           | 78.5         | 78.5         | 77                        | 1               | 1                | 0.432                | 0.423  |
| —          | 54.5  | —     | 58.9 | 51.5                           | —            | 54           | 57           | 61           | 78.5         | —            | —                         | 1               | 1                | 0.495                | —      |
| —          | 55    | 75    | 59   | 51.5                           | 51.5         | 54           | 57           | 61           | 78.5         | 78.5         | 77                        | 1               | 1                | 0.53                 | 0.52   |
| —          | 54.5  | —     | 58.9 | 51.5                           | —            | 54           | 57           | 61           | 78.5         | —            | —                         | 1               | 1                | 0.6                  | —      |
| NF         | 58.5  | 86.5  | 64   | 53                             | 53           | 57           | 60           | 66           | 92           | 92           | 89                        | 1.5             | 1.5              | 0.877                | 0.857  |
| —          | 58.5  | —     | 64.5 | 53                             | —            | 57           | 60           | 66           | 92           | —            | —                         | 1.5             | 1.5              | 0.996                | —      |
| —          | 58.5  | 86.5  | 64   | 53                             | 53           | 57           | 60           | 66           | 92           | 92           | 89                        | 1.5             | 1.5              | 1.27                 | 1.24   |
| —          | 58.5  | —     | 64.5 | 53                             | —            | 57           | 60           | 66           | 92           | —            | —                         | 1.5             | 1.5              | 1.41                 | —      |
| NF         | 64.5  | 100.5 | 71.8 | 54                             | 54           | 63           | 66           | 74           | 111          | 111          | 102                       | 2               | 2                | 1.62                 | 1.58   |
| —          | 57.5  | 72.5  | 60.5 | 54                             | 55           | 57           | 59           | 61           | 75           | 76           | 73.5                      | 1               | 0.6              | 0.295                | 0.291  |
| NF         | 60.4  | 80.4  | 64.6 | 56.5                           | 56.5         | 58           | 62           | 67           | 83.5         | 83.5         | 83                        | 1               | 1                | 0.47                 | 0.46   |
| —          | 59.5  | —     | 63.9 | 56.5                           | —            | 58           | 62           | 67           | 83.5         | —            | —                         | 1               | 1                | 0.54                 | —      |
| —          | 60.4  | 80.4  | 64.6 | 56.5                           | 56.5         | 58           | 62           | 67           | 83.5         | 83.5         | 83                        | 1               | 1                | 0.571                | 0.56   |
| —          | 59.5  | —     | 63.9 | 56.5                           | —            | 58           | 62           | 67           | 83.5         | —            | —                         | 1               | 1                | 0.652                | —      |
| NF         | 65    | 95    | 71   | 59                             | 59           | 63           | 67           | 73           | 101          | 101          | 98                        | 2               | 2                | 1.14                 | 1.11   |
| —          | 65    | —     | 71.4 | 59                             | —            | 63           | 67           | 73           | 101          | —            | —                         | 2               | 2                | 1.3                  | —      |
| —          | 65    | 95    | 71   | 59                             | 59           | 63           | 67           | 73           | 101          | 101          | 98                        | 2               | 2                | 1.7                  | 1.67   |
| —          | 65    | —     | 71.4 | 59                             | —            | 63           | 67           | 73           | 101          | —            | —                         | 2               | 2                | 1.9                  | —      |
| NF         | 70.8  | 110.8 | 78.8 | 61                             | 61           | 69           | 73           | 81           | 119          | 119          | 112                       | 2               | 2                | 2.02                 | 1.97   |
| —          | 64.5  | 80.5  | 67.7 | 60                             | 61.5         | 63           | 66           | 68.5         | 83.5         | 85           | 81.5                      | 1               | 1                | 0.442                | 0.435  |
| NF         | 66.5  | 88.5  | 70.8 | 61.5                           | 63           | 65           | 68           | 73           | 92           | 93.5         | 91                        | 1.5             | 1                | 0.638                | 0.626  |
| —          | 66    | —     | 70.8 | 61.5                           | —            | 65           | 68           | 73           | 92           | —            | —                         | 1.5             | 1                | 0.718                | —      |
| —          | 66.5  | 88.5  | 70.8 | 61.5                           | 63           | 65           | 68           | 73           | 92           | 93.5         | 91                        | 1.5             | 1                | 0.773                | 0.758  |
| —          | 66    | —     | 70.8 | 61.5                           | —            | 65           | 68           | 73           | 92           | —            | —                         | 1.5             | 1                | 0.968                | —      |
| NF         | 70.5  | 104.5 | 77.2 | 64                             | 64           | 69           | 72           | 80           | 111          | 111          | 107                       | 2               | 2                | 1.45                 | 1.42   |
| —          | 70.5  | —     | 77.7 | 64                             | —            | 69           | 72           | 80           | 111          | —            | —                         | 2               | 2                | 1.65                 | —      |
| —          | 70.5  | 104.5 | 77.2 | 64                             | 64           | 69           | 72           | 80           | 111          | 111          | 107                       | 2               | 2                | 2.17                 | 2.13   |
| —          | 70.5  | —     | 77.7 | 64                             | —            | 69           | 72           | 80           | 111          | —            | —                         | 2               | 2                | 2.37                 | —      |
| NF         | 77.2  | 117.2 | 85.2 | 66                             | 66           | 76           | 79           | 87           | 129          | 129          | 119                       | 2               | 2                | 2.48                 | 2.42   |
| —          | 69.5  | 85.5  | 72.7 | 65                             | 66.5         | 68           | 71           | 73.5         | 88.5         | 90           | 86.5                      | 1               | 1                | 0.474                | 0.467  |
| NF         | 73.5  | 97.5  | 78.4 | 68                             | 68           | 71           | 75           | 80           | 102          | 102          | 100                       | 1.5             | 1.5              | 0.818                | 0.802  |
| —          | 72    | —     | 77.6 | 68                             | —            | 71           | 75           | 80           | 102          | —            | —                         | 1.5             | 1.5              | 0.923                | —      |
| —          | 73.5  | 97.5  | 78.4 | 68                             | 68           | 71           | 75           | 80           | 102          | 102          | 100                       | 1.5             | 1.5              | 1.06                 | 1.04   |

④ Does not apply to side of the outer ring rib of type NF bearings.



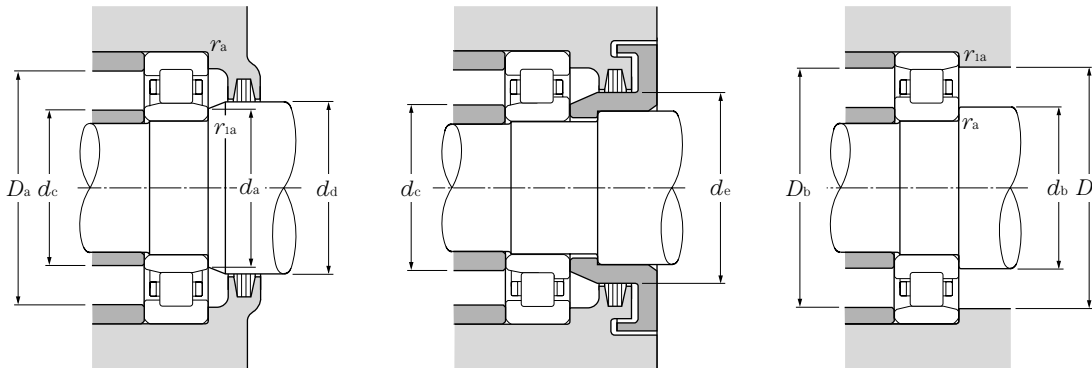


**d 55~70mm**

| Boundary dimensions |     |    |                                 |                                  | Basic load ratings |                 |                |                 | Limiting speeds <sup>①</sup> |       | Bearing numbers |            |             |           |
|---------------------|-----|----|---------------------------------|----------------------------------|--------------------|-----------------|----------------|-----------------|------------------------------|-------|-----------------|------------|-------------|-----------|
| mm                  |     |    |                                 |                                  | dynamic            | static          | dynamic        | static          | rpm                          |       | type<br>NU      | type<br>NJ | type<br>NUP | type<br>N |
| d                   | D   | B  | r <sub>s</sub> min <sup>②</sup> | r <sub>1s</sub> min <sup>②</sup> | C <sub>r</sub>     | C <sub>or</sub> | C <sub>r</sub> | C <sub>or</sub> | grease                       | oil   |                 |            |             |           |
| 60                  | 110 | 28 | 1.5                             | 1.5                              | 131                | 157             | 13,400         | 16,000          | 5,200                        | 6,100 | NU2212E         | NJ         | NUP         | —         |
|                     | 130 | 31 | 2.1                             | 2.1                              | 124                | 126             | 12,600         | 12,900          | 5,500                        | 6,500 | NU312           | NJ         | NUP         | N         |
|                     | 130 | 31 | 2.1                             | 2.1                              | 150                | 157             | 15,200         | 16,000          | 4,900                        | 5,800 | NU312E          | NJ         | NUP         | —         |
|                     | 130 | 46 | 2.1                             | 2.1                              | 169                | 188             | 17,200         | 19,200          | 4,800                        | 5,700 | NU2312          | NJ         | NUP         | N         |
|                     | 130 | 46 | 2.1                             | 2.1                              | 222                | 262             | 22,700         | 26,700          | 4,400                        | 5,200 | NU2312E         | NJ         | NUP         | —         |
|                     | 150 | 35 | 2.1                             | 2.1                              | 167                | 168             | 17,100         | 17,200          | 3,900                        | 4,600 | NU412           | NJ         | NUP         | N         |
| 65                  | 100 | 18 | 1.1                             | 1                                | 41.0               | 51.0            | 4,200          | 5,200           | 7,000                        | 8,200 | NU1013          | NJ         | NUP         | N         |
|                     | 120 | 23 | 1.5                             | 1.5                              | 84.0               | 94.5            | 8,550          | 9,650           | 5,900                        | 7,000 | NU213           | NJ         | NUP         | N         |
|                     | 120 | 23 | 1.5                             | 1.5                              | 108                | 119             | 11,000         | 12,100          | 5,400                        | 6,300 | NU213E          | NJ         | NUP         | —         |
|                     | 120 | 31 | 1.5                             | 1.5                              | 120                | 149             | 12,200         | 15,200          | 5,400                        | 6,300 | NU2213          | NJ         | NUP         | N         |
|                     | 120 | 31 | 1.5                             | 1.5                              | 149                | 181             | 15,200         | 18,400          | 4,800                        | 5,600 | NU2213E         | NJ         | NUP         | —         |
|                     | 140 | 33 | 2.1                             | 2.1                              | 135                | 139             | 13,800         | 14,200          | 5,100                        | 6,000 | NU313           | NJ         | NUP         | N         |
|                     | 140 | 33 | 2.1                             | 2.1                              | 181                | 191             | 18,400         | 19,500          | 4,600                        | 5,400 | NU313E          | NJ         | NUP         | —         |
|                     | 140 | 48 | 2.1                             | 2.1                              | 188                | 212             | 19,100         | 21,700          | 4,400                        | 5,200 | NU2313          | NJ         | NUP         | N         |
| 70                  | 140 | 48 | 2.1                             | 2.1                              | 248                | 287             | 25,200         | 29,300          | 4,100                        | 4,800 | NU2313E         | NJ         | NUP         | —         |
|                     | 160 | 37 | 2.1                             | 2.1                              | 182                | 186             | 18,600         | 19,000          | 3,600                        | 4,300 | NU413           | NJ         | NUP         | N         |
|                     | 110 | 20 | 1.1                             | 1                                | 58.5               | 70.5            | 5,950          | 7,200           | 6,500                        | 7,600 | NU1014          | NJ         | NUP         | N         |
|                     | 125 | 24 | 1.5                             | 1.5                              | 83.5               | 95.0            | 8,500          | 9,700           | 5,500                        | 6,500 | NU214           | NJ         | NUP         | N         |
|                     | 125 | 24 | 1.5                             | 1.5                              | 119                | 137             | 12,100         | 14,000          | 5,000                        | 5,900 | NU214E          | NJ         | NUP         | —         |
|                     | 125 | 31 | 1.5                             | 1.5                              | 119                | 151             | 12,200         | 15,400          | 5,000                        | 5,900 | NU2214          | NJ         | NUP         | N         |
|                     | 125 | 31 | 1.5                             | 1.5                              | 156                | 194             | 15,900         | 19,800          | 4,500                        | 5,200 | NU2214E         | NJ         | NUP         | —         |
|                     | 150 | 35 | 2.1                             | 2.1                              | 158                | 168             | 16,100         | 17,200          | 4,700                        | 5,500 | NU314           | NJ         | NUP         | N         |
|                     | 150 | 35 | 2.1                             | 2.1                              | 205                | 222             | 20,900         | 22,600          | 4,200                        | 5,000 | NU314E          | NJ         | NUP         | —         |
|                     | 150 | 51 | 2.1                             | 2.1                              | 223                | 262             | 22,700         | 26,700          | 4,100                        | 4,800 | NU2314          | NJ         | NUP         | N         |
| 75                  | 150 | 51 | 2.1                             | 2.1                              | 274                | 325             | 27,900         | 33,000          | 3,800                        | 4,400 | NU2314E         | NJ         | NUP         | —         |
|                     | 180 | 42 | 3                               | 3                                | 228                | 236             | 23,200         | 24,000          | 3,400                        | 4,000 | NU414           | NJ         | NUP         | N         |
|                     | 115 | 20 | 1.1                             | 1                                | 60.0               | 74.5            | 6,100          | 7,600           | 6,100                        | 7,100 | NU1015          | NJ         | NUP         | N         |
|                     | 130 | 25 | 1.5                             | 1.5                              | 96.5               | 111             | 9,850          | 11,300          | 5,100                        | 6,000 | NU215           | NJ         | NUP         | N         |
|                     | 130 | 25 | 1.5                             | 1.5                              | 130                | 156             | 13,300         | 16,000          | 4,700                        | 5,500 | NU215E          | NJ         | NUP         | —         |
|                     | 130 | 31 | 1.5                             | 1.5                              | 130                | 162             | 13,200         | 16,500          | 4,700                        | 5,500 | NU2215          | NJ         | NUP         | N         |
|                     | 130 | 31 | 1.5                             | 1.5                              | 162                | 207             | 16,500         | 21,100          | 4,200                        | 4,900 | NU2215E         | NJ         | NUP         | —         |
|                     | 160 | 37 | 2.1                             | 2.1                              | 190                | 205             | 19,400         | 20,900          | 4,400                        | 5,200 | NU315           | NJ         | NUP         | N         |
|                     | 160 | 37 | 2.1                             | 2.1                              | 240                | 263             | 24,500         | 26,800          | 4,000                        | 4,700 | NU315E          | NJ         | NUP         | —         |
| 75                  | 160 | 55 | 2.1                             | 2.1                              | 258                | 300             | 26,300         | 31,000          | 3,800                        | 4,500 | NU2315          | NJ         | NUP         | N         |

① This value achieved with machined cages; when pressed cages are used, 80% of this value is acceptable.

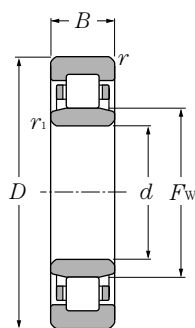
② Minimal allowable dimension for chamfer dimension  $r$  or  $r_1$ .



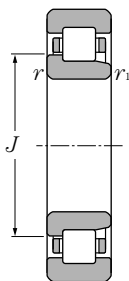
**Equivalent bearing load**  
**dynamic**  
 $P_r = F_r$   
**static**  
 $P_{or} = F_r$

| Dimensions |       |       |       | Abutment and fillet dimensions |              |              |              |              |              |              |                           |                 |                  | Mass                 |        |
|------------|-------|-------|-------|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------------------|-----------------|------------------|----------------------|--------|
| type       | mm    |       |       | mm                             |              |              |              |              |              |              |                           |                 |                  | kg                   |        |
| NF         | $F_w$ | $E_w$ | $J$   | $d_a$<br>min                   | $d_b$<br>min | $d_c$<br>max | $d_d$<br>min | $d_e$<br>min | $D_a$<br>max | $D_b$<br>max | $d_b$<br>min <sup>④</sup> | $r_{as}$<br>max | $r_{1as}$<br>max | type NU<br>(approx.) | type N |
| —          | 72    | —     | 77.6  | 68                             | —            | 71           | 75           | 80           | 102          | —            | —                         | 1.5             | 1.5              | 1.21                 | —      |
| NF         | 77    | 113   | 84.2  | 71                             | 71           | 75           | 79           | 86           | 119          | 119          | 116                       | 2               | 2                | 1.8                  | 1.76   |
| —          | 77    | —     | 84.6  | 71                             | —            | 75           | 79           | 86           | 119          | —            | —                         | 2               | 2                | 2.05                 | —      |
| —          | 77    | 113   | 84.2  | 71                             | 71           | 75           | 79           | 86           | 119          | 119          | 116                       | 2               | 2                | 2.71                 | 2.66   |
| —          | 77    | —     | 84.6  | 71                             | —            | 75           | 79           | 86           | 119          | —            | —                         | 2               | 2                | 2.96                 | —      |
| NF         | 83    | 127   | 91.8  | 71                             | 71           | 82           | 85           | 94           | 139          | 139          | 128                       | 2               | 2                | 3                    | 2.93   |
| —          | 74.5  | 90.5  | 77.7  | 70                             | 71.5         | 73           | 76           | 78.5         | 93.5         | 95           | 91.5                      | 1               | 1                | 0.485                | 0.477  |
| NF         | 79.6  | 105.6 | 84.8  | 73                             | 73           | 77           | 81           | 87           | 112          | 112          | 108                       | 1.5             | 1.5              | 1.02                 | 1      |
| —          | 78.5  | —     | 84.5  | 73                             | —            | 77           | 81           | 87           | 112          | —            | —                         | 1.5             | 1.5              | 1.21                 | —      |
| —          | 79.6  | 105.6 | 84.8  | 73                             | 73           | 77           | 81           | 87           | 112          | 112          | 108                       | 1.5             | 1.5              | 1.4                  | 1.37   |
| —          | 78.5  | —     | 84.5  | 73                             | —            | 77           | 81           | 87           | 112          | —            | —                         | 1.5             | 1.5              | 1.6                  | —      |
| NF         | 83.5  | 121.5 | 91    | 76                             | 76           | 81           | 85           | 93           | 129          | 129          | 125                       | 2               | 2                | 2.23                 | 2.18   |
| —          | 82.5  | —     | 91    | 76                             | —            | 81           | 85           | 93           | 129          | —            | —                         | 2               | 2                | 2.54                 | —      |
| —          | 83.5  | 121.5 | 91    | 76                             | 76           | 81           | 85           | 93           | 129          | 129          | 125                       | 2               | 2                | 3.27                 | 3.2    |
| —          | 82.5  | —     | 91    | 76                             | —            | 81           | 85           | 93           | 129          | —            | —                         | 2               | 2                | 3.48                 | —      |
| NF         | 89.3  | 135.3 | 98.5  | 76                             | 76           | 88           | 91           | 100          | 149          | 149          | 137                       | 2               | 2                | 3.6                  | 3.5    |
| —          | 80    | 100   | 84    | 75                             | 76.5         | 78           | 82           | 85           | 103.5        | 105          | 101                       | 1               | 1                | 0.699                | 0.689  |
| NF         | 84.5  | 110.5 | 89.6  | 78                             | 78           | 82           | 86           | 92           | 117          | 117          | 114                       | 1.5             | 1.5              | 1.12                 | 1.1    |
| —          | 83.5  | —     | 89.5  | 78                             | —            | 82           | 86           | 92           | 117          | —            | —                         | 1.5             | 1.5              | 1.3                  | —      |
| —          | 84.5  | 110.5 | 89.6  | 78                             | 78           | 82           | 86           | 92           | 117          | 117          | 114                       | 1.5             | 1.5              | 1.47                 | 1.44   |
| —          | 83.5  | —     | 89.5  | 78                             | —            | 82           | 86           | 92           | 117          | —            | —                         | 1.5             | 1.5              | 1.7                  | —      |
| NF         | 90    | 130   | 98    | 81                             | 81           | 87           | 92           | 100          | 139          | 139          | 134                       | 2               | 2                | 2.71                 | 2.65   |
| —          | 89    | —     | 98    | 81                             | —            | 87           | 92           | 100          | 139          | —            | —                         | 2               | 2                | 3.1                  | —      |
| —          | 90    | 130   | 98    | 81                             | 81           | 87           | 92           | 100          | 139          | 139          | 134                       | 2               | 2                | 3.98                 | 3.9    |
| —          | 89    | —     | 98    | 81                             | —            | 87           | 92           | 100          | 139          | —            | —                         | 2               | 2                | 4.25                 | —      |
| NF         | 100   | 152   | 110.5 | 83                             | 83           | 99           | 102          | 112          | 167          | 167          | 153                       | 2.5             | 2.5              | 5.24                 | 5.1    |
| —          | 85    | 105   | 89    | 80                             | 81.5         | 83           | 87           | 90           | 108.5        | 110          | 106                       | 1               | 1                | 0.738                | 0.727  |
| NF         | 88.5  | 116.5 | 94    | 83                             | 83           | 87           | 90           | 96           | 122          | 122          | 120                       | 1.5             | 1.5              | 1.23                 | 1.21   |
| —          | 88.5  | —     | 94.5  | 83                             | —            | 87           | 90           | 96           | 122          | —            | —                         | 1.5             | 1.5              | 1.41                 | —      |
| —          | 88.5  | 116.5 | 94    | 83                             | 83           | 87           | 90           | 96           | 122          | 122          | 120                       | 1.5             | 1.5              | 1.55                 | 1.52   |
| —          | 88.5  | —     | 94.5  | 83                             | —            | 87           | 90           | 96           | 122          | —            | —                         | 1.5             | 1.5              | 1.79                 | —      |
| NF         | 95.5  | 139.5 | 104.2 | 86                             | 86           | 93           | 97           | 106          | 149          | 149          | 143                       | 2               | 2                | 3.28                 | 3.21   |
| —          | 95    | —     | 104.6 | 86                             | —            | 93           | 97           | 106          | 149          | —            | —                         | 2               | 2                | 3.74                 | —      |
| —          | 95.5  | 139.5 | 104.2 | 86                             | 86           | 93           | 97           | 106          | 149          | 149          | 143                       | 2               | 2                | 4.87                 | 4.77   |

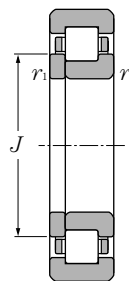
④ Does not apply to side of the outer ring rib of type **NF** bearings.



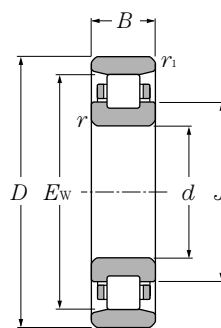
Type NU



Type NJ



Type NUP



Type N



Type NF

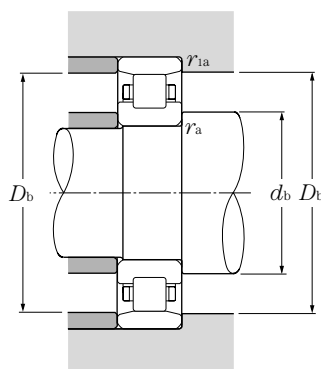
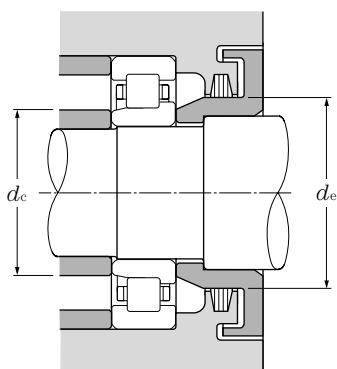
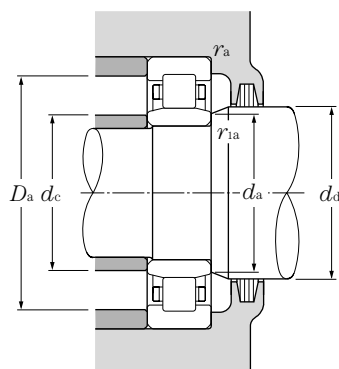
## d 70~90mm

| Boundary dimensions |     |    |                                 |                                  | Basic load ratings |                 |                |                 | Limiting speeds <sup>①</sup> |       | Bearing numbers |            |             |           |
|---------------------|-----|----|---------------------------------|----------------------------------|--------------------|-----------------|----------------|-----------------|------------------------------|-------|-----------------|------------|-------------|-----------|
| mm                  |     |    |                                 |                                  | dynamic            | static          | dynamic        | static          | rpm                          |       | type<br>NU      | type<br>NJ | type<br>NUP | type<br>N |
| d                   | D   | B  | r <sub>s min</sub> <sup>②</sup> | r <sub>1s min</sub> <sup>②</sup> | C <sub>r</sub>     | C <sub>or</sub> | C <sub>r</sub> | C <sub>or</sub> | grease                       | oil   |                 |            |             |           |
| 75                  | 160 | 55 | 2.1                             | 2.1                              | 330                | 395             | 33,500         | 40,000          | 3,500                        | 4,100 | NU2315E         | NJ         | NUP         | —         |
|                     | 190 | 45 | 3                               | 3                                | 262                | 274             | 26,800         | 27,900          | 3,200                        | 3,700 | NU415           | NJ         | NUP         | N         |
| 80                  | 125 | 22 | 1.1                             | 1                                | 72.5               | 90.5            | 7,400          | 9,250           | 5,700                        | 6,700 | NU1016          | NJ         | NUP         | N         |
|                     | 140 | 26 | 2                               | 2                                | 106                | 122             | 10,800         | 12,500          | 4,800                        | 5,700 | NU216           | NJ         | NUP         | N         |
|                     | 140 | 26 | 2                               | 2                                | 139                | 167             | 14,200         | 17,000          | 4,400                        | 5,100 | NU216E          | NJ         | NUP         | —         |
|                     | 140 | 33 | 2                               | 2                                | 147                | 186             | 15,000         | 19,000          | 4,400                        | 5,100 | NU2216          | NJ         | NUP         | N         |
|                     | 140 | 33 | 2                               | 2                                | 186                | 243             | 19,000         | 24,800          | 3,900                        | 4,600 | NU2216E         | NJ         | NUP         | —         |
|                     | 170 | 39 | 2.1                             | 2.1                              | 190                | 207             | 19,400         | 21,100          | 4,100                        | 4,800 | NU316           | NJ         | NUP         | N         |
|                     | 170 | 39 | 2.1                             | 2.1                              | 256                | 282             | 26,100         | 28,800          | 3,700                        | 4,400 | NU316E          | NJ         | NUP         | —         |
|                     | 170 | 58 | 2.1                             | 2.1                              | 274                | 330             | 27,900         | 34,000          | 3,600                        | 4,200 | NU2316          | NJ         | NUP         | N         |
|                     | 170 | 58 | 2.1                             | 2.1                              | 355                | 430             | 36,500         | 44,000          | 3,300                        | 3,900 | NU2316E         | NJ         | NUP         | —         |
| 85                  | 200 | 48 | 3                               | 3                                | 299                | 315             | 30,500         | 32,000          | 3,000                        | 3,500 | NU416           | NJ         | NUP         | N         |
|                     | 130 | 22 | 1.1                             | 1                                | 74.5               | 95.5            | 7,600          | 9,750           | 5,400                        | 6,300 | NU1017          | NJ         | NUP         | N         |
|                     | 150 | 28 | 2                               | 2                                | 120                | 140             | 12,300         | 14,300          | 4,500                        | 5,300 | NU217           | NJ         | NUP         | N         |
|                     | 150 | 28 | 2                               | 2                                | 167                | 199             | 17,000         | 20,300          | 4,100                        | 4,800 | NU217E          | NJ         | NUP         | —         |
|                     | 150 | 36 | 2                               | 2                                | 170                | 218             | 17,300         | 22,200          | 4,100                        | 4,800 | NU2217          | NJ         | NUP         | N         |
|                     | 150 | 36 | 2                               | 2                                | 217                | 279             | 22,200         | 28,400          | 3,700                        | 4,300 | NU2217E         | NJ         | NUP         | —         |
|                     | 180 | 41 | 3                               | 3                                | 212                | 228             | 21,600         | 23,300          | 3,900                        | 4,600 | NU317           | NJ         | NUP         | N         |
|                     | 180 | 41 | 3                               | 3                                | 291                | 330             | 29,700         | 33,500          | 3,500                        | 4,100 | NU317E          | NJ         | NUP         | —         |
|                     | 180 | 60 | 3                               | 3                                | 315                | 380             | 32,000         | 39,000          | 3,400                        | 4,000 | NU2317          | NJ         | NUP         | N         |
| 90                  | 180 | 60 | 3                               | 3                                | 395                | 485             | 40,000         | 49,500          | 3,100                        | 3,700 | NU2317E         | NJ         | NUP         | —         |
|                     | 140 | 24 | 1.5                             | 1.1                              | 88.0               | 114             | 9,000          | 11,700          | 5,100                        | 5,900 | NU1018          | NJ         | NUP         | N         |
|                     | 160 | 30 | 2                               | 2                                | 152                | 178             | 15,500         | 18,100          | 4,300                        | 5,000 | NU218           | NJ         | NUP         | N         |
|                     | 160 | 30 | 2                               | 2                                | 182                | 217             | 18,500         | 22,200          | 3,900                        | 4,600 | NU218E          | NJ         | NUP         | —         |
|                     | 160 | 40 | 2                               | 2                                | 197                | 248             | 20,100         | 25,300          | 3,900                        | 4,600 | NU2218          | NJ         | NUP         | N         |
|                     | 160 | 40 | 2                               | 2                                | 242                | 315             | 24,700         | 32,000          | 3,500                        | 4,100 | NU2218E         | NJ         | NUP         | —         |
|                     | 190 | 43 | 3                               | 3                                | 240                | 265             | 24,500         | 27,100          | 3,700                        | 4,300 | NU318           | NJ         | NUP         | N         |
|                     | 190 | 43 | 3                               | 3                                | 315                | 355             | 32,000         | 36,000          | 3,300                        | 3,900 | NU318E          | NJ         | NUP         | —         |
|                     | 190 | 64 | 3                               | 3                                | 325                | 395             | 33,500         | 40,000          | 3,200                        | 3,800 | NU2318          | NJ         | NUP         | N         |
| 95                  | 190 | 64 | 3                               | 3                                | 435                | 535             | 44,500         | 54,500          | 2,900                        | 3,400 | NU2318E         | NJ         | NUP         | —         |
|                     | 145 | 24 | 1.5                             | 1.1                              | 90.5               | 120             | 9,250          | 12,300          | 4,800                        | 5,600 | NU1019          | NJ         | NUP         | N         |
|                     | 170 | 32 | 2.1                             | 2.1                              | 166                | 195             | 16,900         | 19,900          | 4,000                        | 4,700 | NU219           | NJ         | NUP         | N         |
|                     | 170 | 32 | 2.1                             | 2.1                              | 220                | 265             | 22,500         | 27,000          | 3,600                        | 4,300 | NU219E          | NJ         | NUP         | —         |

① This value achieved with machined cages; when pressed cages are used, 80% of this value is acceptable.

② Minimal allowable dimension for chamfer dimension  $r$  or  $r_1$ .

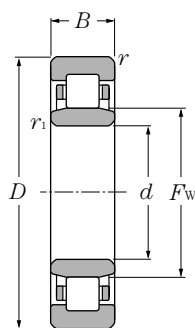




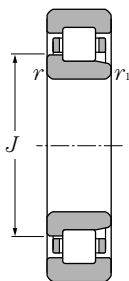
**Equivalent bearing load**  
**dynamic**  
 $P_r = F_r$   
**static**  
 $P_{or} = F_r$

| Dimensions |       |       |       | Abutment and fillet dimensions |              |              |              |              |              |              |                           |                 |                  | Mass                 |        |
|------------|-------|-------|-------|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------------------|-----------------|------------------|----------------------|--------|
| type       | mm    |       |       | mm                             |              |              |              |              |              |              |                           |                 |                  | kg                   |        |
| NF         | $F_w$ | $E_w$ | $J$   | $d_a$<br>min                   | $d_b$<br>min | $d_c$<br>max | $d_d$<br>min | $d_e$<br>min | $D_a$<br>max | $D_b$<br>max | $d_b$<br>min <sup>④</sup> | $r_{as}$<br>max | $r_{1as}$<br>max | type NU<br>(approx.) | type N |
| —          | 95    | —     | 104.6 | 86                             | —            | 93           | 97           | 106          | 149          | —            | —                         | 2               | 2                | 5.25                 | —      |
| NF         | 104.5 | 160.5 | 116   | 88                             | 88           | 103          | 107          | 118          | 177          | 177          | 162                       | 2.5             | 2.5              | 6.22                 | 6.06   |
| —          | 91.5  | 113.5 | 95.9  | 85                             | 86.5         | 90           | 94           | 97           | 118.5        | 120          | 114.5                     | 1               | 1                | 0.98                 | 0.965  |
| NF         | 95.3  | 125.3 | 101.2 | 89                             | 89           | 94           | 97           | 104          | 131          | 131          | 128                       | 2               | 2                | 1.5                  | 1.47   |
| —          | 95.3  | —     | 101.7 | 89                             | —            | 94           | 97           | 104          | 131          | —            | —                         | 2               | 2                | 1.67                 | —      |
| —          | 95.3  | 125.3 | 101.2 | 89                             | 89           | 94           | 97           | 104          | 131          | 131          | 128                       | 2               | 2                | 1.93                 | 1.89   |
| —          | 95.3  | —     | 101.7 | 89                             | —            | 94           | 97           | 104          | 131          | —            | —                         | 2               | 2                | 2.12                 | —      |
| NF         | 103   | 147   | 111.8 | 91                             | 91           | 99           | 105          | 114          | 159          | 159          | 151                       | 2               | 2                | 3.86                 | 3.77   |
| —          | 101   | —     | 111   | 91                             | —            | 99           | 105          | 114          | 159          | —            | —                         | 2               | 2                | 4.22                 | —      |
| —          | 103   | 147   | 111.8 | 91                             | 91           | 99           | 105          | 114          | 159          | 159          | 151                       | 2               | 2                | 5.79                 | 5.67   |
| —          | 101   | —     | 111   | 91                             | —            | 99           | 105          | 114          | 159          | —            | —                         | 2               | 2                | 6.25                 | —      |
| NF         | 110   | 170   | 122   | 93                             | 93           | 109          | 112          | 124          | 187          | 187          | 172                       | 2.5             | 2.5              | 7.32                 | 7.14   |
| —          | 96.5  | 118.5 | 100.9 | 90                             | 91.5         | 95           | 99           | 102          | 123.5        | 125          | 119.5                     | 1               | 1                | 1.03                 | 1.01   |
| NF         | 101.8 | 133.8 | 108.2 | 94                             | 94           | 99           | 104          | 110          | 141          | 141          | 137                       | 2               | 2                | 1.87                 | 1.83   |
| —          | 100.5 | —     | 107.7 | 94                             | —            | 99           | 104          | 110          | 141          | —            | —                         | 2               | 2                | 2.11                 | —      |
| —          | 101.8 | 133.8 | 108.2 | 94                             | 94           | 99           | 104          | 110          | 141          | 141          | 137                       | 2               | 2                | 2.44                 | 2.39   |
| —          | 100.5 | —     | 107.7 | 94                             | —            | 99           | 104          | 110          | 141          | —            | —                         | 2               | 2                | 2.68                 | —      |
| NF         | 108   | 156   | 117.5 | 98                             | 98           | 106          | 110          | 119          | 167          | 167          | 160                       | 2.5             | 2.5              | 4.54                 | 4.44   |
| —          | 108   | —     | 118.4 | 98                             | —            | 106          | 110          | 119          | 167          | —            | —                         | 2.5             | 2.5              | 4.81                 | —      |
| —          | 108   | 156   | 117.5 | 98                             | 98           | 106          | 110          | 119          | 167          | 167          | 160                       | 2.5             | 2.5              | 6.7                  | 6.57   |
| —          | 108   | —     | 118.4 | 98                             | —            | 106          | 110          | 119          | 167          | —            | —                         | 2.5             | 2.5              | 7.16                 | —      |
| —          | 103   | 127   | 107.8 | 96.5                           | 98           | 101          | 106          | 109          | 132          | 133.5        | 129                       | 1.5             | 1                | 1.33                 | 1.31   |
| NF         | 107   | 143   | 114.2 | 99                             | 99           | 105          | 109          | 116          | 151          | 151          | 146                       | 2               | 2                | 2.3                  | 2.25   |
| —          | 107   | —     | 114.6 | 99                             | —            | 105          | 109          | 116          | 151          | —            | —                         | 2               | 2                | 2.44                 | —      |
| —          | 107   | 143   | 114.2 | 99                             | 99           | 105          | 109          | 116          | 151          | 151          | 146                       | 2               | 2                | 3.1                  | 3.04   |
| —          | 107   | —     | 114.6 | 99                             | —            | 105          | 109          | 116          | 151          | —            | —                         | 2               | 2                | 3.33                 | —      |
| NF         | 115   | 165   | 125   | 103                            | 103          | 111          | 117          | 127          | 177          | 177          | 169                       | 2.5             | 2.5              | 5.3                  | 5.18   |
| —          | 113.5 | —     | 124.7 | 103                            | —            | 111          | 117          | 127          | 177          | —            | —                         | 2.5             | 2.5              | 5.72                 | —      |
| —          | 115   | 165   | 125   | 103                            | 103          | 111          | 117          | 127          | 177          | 177          | 169                       | 2.5             | 2.5              | 7.95                 | 7.79   |
| —          | 113.5 | —     | 124.7 | 103                            | —            | 111          | 117          | 127          | 177          | —            | —                         | 2.5             | 2.5              | 8.56                 | —      |
| —          | 108   | 132   | 112.8 | 101.5                          | 103          | 106          | 111          | 114          | 137          | 138.5        | 134                       | 1.5             | 1                | 1.4                  | 1.38   |
| NF         | 113.5 | 151.5 | 121   | 106                            | 106          | 111          | 116          | 123          | 159          | 159          | 155                       | 2               | 2                | 2.78                 | 2.72   |
| —          | 112.5 | —     | 121   | 106                            | —            | 111          | 116          | 123          | 159          | —            | —                         | 2               | 2                | 3.02                 | —      |

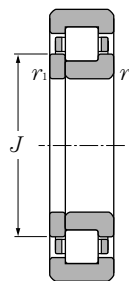
④ Does not apply to side of the outer ring rib of type NF bearings.



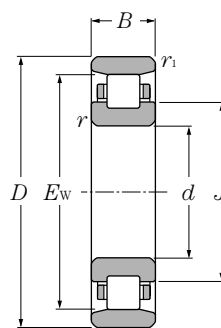
Type NU



Type NJ



Type NUP



Type N



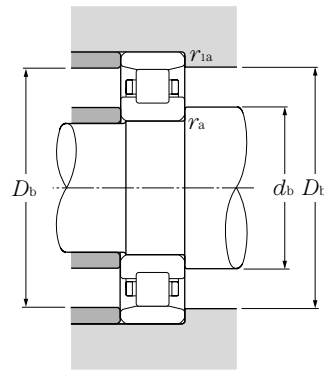
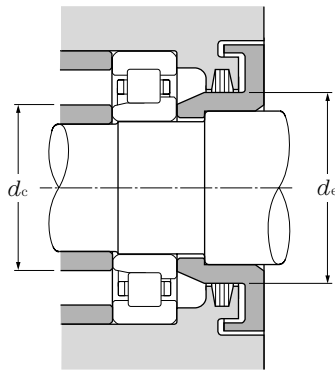
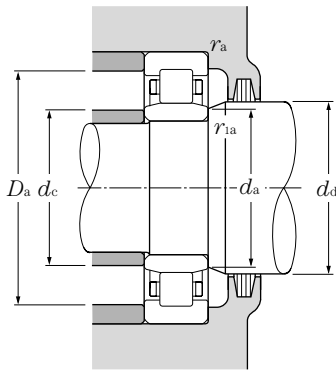
Type NF

**d 90~110mm**

| Boundary dimensions |     |    |                                 |                                  | Basic load ratings |                 |                |                 | Limiting speeds <sup>①</sup> |       | Bearing numbers |            |             |           |
|---------------------|-----|----|---------------------------------|----------------------------------|--------------------|-----------------|----------------|-----------------|------------------------------|-------|-----------------|------------|-------------|-----------|
| mm                  |     |    |                                 |                                  | dynamic            | static          | dynamic        | static          | rpm                          |       | type<br>NU      | type<br>NJ | type<br>NUP | type<br>N |
| d                   | D   | B  | r <sub>s</sub> min <sup>②</sup> | r <sub>1s</sub> min <sup>②</sup> | C <sub>r</sub>     | C <sub>or</sub> | C <sub>r</sub> | C <sub>or</sub> | grease                       | oil   |                 |            |             |           |
| 95                  | 170 | 43 | 2.1                             | 2.1                              | 230                | 298             | 23,500         | 30,500          | 3,600                        | 4,300 | NU2219          | NJ         | NUP         | N         |
|                     | 170 | 43 | 2.1                             | 2.1                              | 286                | 370             | 29,200         | 38,000          | 3,300                        | 3,800 | NU2219E         | NJ         | NUP         | —         |
|                     | 200 | 45 | 3                               | 3                                | 259                | 285             | 26,400         | 29,500          | 3,400                        | 4,000 | NU319           | NJ         | NUP         | N         |
|                     | 200 | 45 | 3                               | 3                                | 335                | 385             | 34,000         | 39,500          | 3,100                        | 3,600 | NU319E          | NJ         | NUP         | —         |
|                     | 200 | 67 | 3                               | 3                                | 370                | 460             | 38,000         | 47,000          | 3,000                        | 3,500 | NU2319          | NJ         | NUP         | N         |
|                     | 200 | 67 | 3                               | 3                                | 460                | 585             | 47,000         | 59,500          | 2,700                        | 3,200 | NU2319E         | NJ         | NUP         | —         |
| 100                 | 150 | 24 | 1.5                             | 1.1                              | 93.0               | 126             | 9,500          | 12,800          | 4,600                        | 5,400 | NU1020          | NJ         | NUP         | N         |
|                     | 180 | 34 | 2.1                             | 2.1                              | 183                | 217             | 18,600         | 22,200          | 3,800                        | 4,500 | NU220           | NJ         | NUP         | N         |
|                     | 180 | 34 | 2.1                             | 2.1                              | 249                | 305             | 25,400         | 31,000          | 3,500                        | 4,100 | NU220E          | NJ         | NUP         | —         |
|                     | 180 | 46 | 2.1                             | 2.1                              | 258                | 340             | 26,300         | 34,500          | 3,500                        | 4,100 | NU2220          | NJ         | NUP         | N         |
|                     | 180 | 46 | 2.1                             | 2.1                              | 335                | 445             | 34,000         | 45,500          | 3,100                        | 3,600 | NU2220E         | NJ         | NUP         | —         |
|                     | 215 | 47 | 3                               | 3                                | 299                | 335             | 30,500         | 34,500          | 3,300                        | 3,800 | NU320           | NJ         | NUP         | N         |
|                     | 215 | 47 | 3                               | 3                                | 380                | 425             | 38,500         | 43,500          | 2,900                        | 3,500 | NU320E          | NJ         | NUP         | —         |
|                     | 215 | 73 | 3                               | 3                                | 410                | 505             | 42,000         | 51,500          | 2,900                        | 3,400 | NU2320          | NJ         | NUP         | N         |
| 105                 | 160 | 26 | 2                               | 1.1                              | 105                | 142             | 10,700         | 14,500          | 4,300                        | 5,100 | NU1021          | NJ         | NUP         | N         |
|                     | 190 | 36 | 2.1                             | 2.1                              | 201                | 241             | 20,500         | 24,600          | 3,600                        | 4,300 | NU221           | NJ         | NUP         | N         |
|                     | 225 | 49 | 3                               | 3                                | 320                | 360             | 32,500         | 36,500          | 3,100                        | 3,700 | NU321           | NJ         | NUP         | N         |
| 110                 | 170 | 28 | 2                               | 1.1                              | 131                | 174             | 13,400         | 17,700          | 4,100                        | 4,800 | NU1022          | NJ         | NUP         | N         |
|                     | 200 | 38 | 2.1                             | 2.1                              | 240                | 290             | 24,500         | 29,500          | 3,400                        | 4,000 | NU222           | NJ         | NUP         | N         |
|                     | 200 | 38 | 2.1                             | 2.1                              | 293                | 365             | 29,800         | 37,000          | 3,100                        | 3,700 | NU222E          | NJ         | NUP         | —         |
|                     | 200 | 53 | 2.1                             | 2.1                              | 320                | 415             | 32,500         | 42,000          | 3,100                        | 3,700 | NU2222          | NJ         | NUP         | N         |
|                     | 200 | 53 | 2.1                             | 2.1                              | 385                | 515             | 39,000         | 52,500          | 2,800                        | 3,300 | NU2222E         | NJ         | NUP         | —         |
|                     | 240 | 50 | 3                               | 3                                | 360                | 400             | 36,500         | 41,000          | 3,000                        | 3,500 | NU322           | NJ         | NUP         | N         |
|                     | 240 | 50 | 3                               | 3                                | 450                | 525             | 46,000         | 53,500          | 2,700                        | 3,100 | NU322E          | NJ         | NUP         | —         |
|                     | 240 | 80 | 3                               | 3                                | 605                | 790             | 61,500         | 80,500          | 2,600                        | 3,100 | NU2322          | NJ         | NUP         | N         |
|                     | 240 | 80 | 3                               | 3                                | 675                | 880             | 69,000         | 89,500          | 2,400                        | 2,800 | NU2322E         | NJ         | NUP         | —         |
| 120                 | 180 | 28 | 2                               | 1.1                              | 139                | 191             | 14,100         | 19,500          | 3,800                        | 4,400 | NU1024          | NJ         | NUP         | N         |
|                     | 215 | 40 | 2.1                             | 2.1                              | 260                | 320             | 26,500         | 32,500          | 3,200                        | 3,700 | NU224           | NJ         | NUP         | N         |
|                     | 215 | 40 | 2.1                             | 2.1                              | 335                | 420             | 34,000         | 43,000          | 2,900                        | 3,400 | NU224E          | NJ         | NUP         | —         |
|                     | 215 | 58 | 2.1                             | 2.1                              | 350                | 460             | 35,500         | 47,000          | 2,900                        | 3,400 | NU2224          | NJ         | NUP         | N         |
|                     | 215 | 58 | 2.1                             | 2.1                              | 450                | 620             | 46,000         | 63,000          | 2,600                        | 3,000 | NU2224E         | NJ         | NUP         | —         |
|                     | 260 | 55 | 3                               | 3                                | 450                | 510             | 46,000         | 52,000          | 2,700                        | 3,200 | NU324           | NJ         | NUP         | N         |

① This value achieved with machined cages; when pressed cages are used, 80% of this value is acceptable.

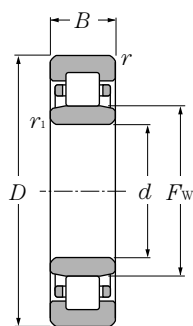
② Minimal allowable dimension for chamfer dimension  $r$  or  $r_1$ .



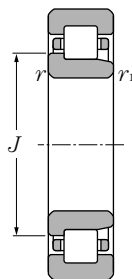
**Equivalent bearing load**  
**dynamic**  
 $P_r = F_r$   
**static**  
 $P_{or} = F_r$

| Dimensions |       |       |       | Abutment and fillet dimensions |              |              |              |              |              |              |                           |                 |                  | Mass                 |        |
|------------|-------|-------|-------|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------------------|-----------------|------------------|----------------------|--------|
| type       | mm    |       |       | mm                             |              |              |              |              |              |              |                           |                 |                  | kg                   |        |
| NF         | $F_w$ | $E_w$ | $J$   | $d_a$<br>min                   | $d_b$<br>min | $d_c$<br>max | $d_d$<br>min | $d_e$<br>min | $D_a$<br>max | $D_b$<br>max | $d_b$<br>min <sup>④</sup> | $r_{as}$<br>max | $r_{1as}$<br>max | type NU<br>(approx.) | type N |
| —          | 113.5 | 151.5 | 121   | 106                            | 106          | 111          | 116          | 123          | 159          | 159          | 155                       | 2               | 2                | 3.79                 | 3.71   |
| —          | 112.5 | —     | 121   | 106                            | —            | 111          | 116          | 123          | 159          | —            | —                         | 2               | 2                | 4.14                 | —      |
| NF         | 121.5 | 173.5 | 132   | 108                            | 108          | 119          | 124          | 134          | 187          | 187          | 178                       | 2.5             | 2.5              | 6.13                 | 5.99   |
| —          | 121.5 | —     | 132.7 | 108                            | —            | 119          | 124          | 134          | 187          | —            | —                         | 2.5             | 2.5              | 6.62                 | —      |
| —          | 121.5 | 173.5 | 132   | 108                            | 108          | 119          | 124          | 134          | 187          | 187          | 178                       | 2.5             | 2.5              | 9.2                  | 9.02   |
| —          | 121.5 | —     | 132.7 | 108                            | —            | 119          | 124          | 134          | 187          | —            | —                         | 2.5             | 2.5              | 9.8                  | —      |
| —          | 113   | 137   | 117.8 | 106.5                          | 108          | 111          | 116          | 119          | 142          | 143.5        | 139                       | 1.5             | 1                | 1.45                 | 1.43   |
| NF         | 120   | 160   | 128   | 111                            | 111          | 117          | 122          | 130          | 169          | 169          | 164                       | 2               | 2                | 3.33                 | 3.26   |
| —          | 119   | —     | 128   | 111                            | —            | 117          | 122          | 130          | 169          | —            | —                         | 2               | 2                | 3.66                 | —      |
| —          | 120   | 160   | 128   | 111                            | 111          | 117          | 122          | 130          | 169          | 169          | 164                       | 2               | 2                | 4.57                 | 4.48   |
| —          | 119   | —     | 128   | 111                            | —            | 117          | 122          | 130          | 169          | —            | —                         | 2               | 2                | 5.01                 | —      |
| NF         | 129.5 | 185.5 | 140.5 | 113                            | 113          | 125          | 132          | 143          | 202          | 202          | 190                       | 2.5             | 2.5              | 7.49                 | 7.32   |
| —          | 127.5 | —     | 140.3 | 113                            | —            | 125          | 132          | 143          | 202          | —            | —                         | 2.5             | 2.5              | 8.57                 | —      |
| —          | 129.5 | 185.5 | 140.5 | 113                            | 113          | 125          | 132          | 143          | 202          | 202          | 190                       | 2.5             | 2.5              | 11.7                 | 11.5   |
| —          | 127.5 | —     | 140.3 | 113                            | —            | 125          | 132          | 143          | 202          | —            | —                         | 2.5             | 2.5              | 12.8                 | —      |
| —          | 119.5 | 145.5 | 124.7 | 111.5                          | 114          | 118          | 122          | 126          | 151          | 153.5        | 147.5                     | 2               | 1                | 1.84                 | 1.81   |
| NF         | 126.8 | 168.8 | 135   | 116                            | 116          | 124          | 129          | 137          | 179          | 179          | 173                       | 2               | 2                | 3.95                 | 3.87   |
| NF         | 135   | 195   | 147   | 118                            | 118          | 132          | 137          | 149          | 212          | 212          | 199                       | 2.5             | 2.5              | 8.53                 | 8.33   |
| —          | 125   | 155   | 131   | 116.5                          | 119          | 124          | 128          | 132          | 161          | 163.5        | 157                       | 2               | 1                | 2.33                 | 2.3    |
| NF         | 132.5 | 178.5 | 141.5 | 121                            | 121          | 130          | 135          | 144          | 189          | 189          | 182                       | 2               | 2                | 4.63                 | 4.54   |
| —          | 132.5 | —     | 142.1 | 121                            | —            | 130          | 135          | 144          | 189          | —            | —                         | 2               | 2                | 4.27                 | —      |
| —          | 132.5 | 178.5 | 141.5 | 121                            | 121          | 130          | 135          | 144          | 189          | 189          | 182                       | 2               | 2                | 6.56                 | 6.43   |
| —          | 132.5 | —     | 142.1 | 121                            | —            | 130          | 135          | 144          | 189          | —            | —                         | 2               | 2                | 7.4                  | —      |
| NF         | 143   | 207   | 155.5 | 123                            | 123          | 140          | 145          | 158          | 227          | 227          | 211                       | 2.5             | 2.5              | 10                   | 9.77   |
| —          | 143   | —     | 156.6 | 123                            | —            | 140          | 145          | 158          | 227          | —            | —                         | 2.5             | 2.5              | 11.1                 | —      |
| —          | 143   | 207   | 155.5 | 123                            | 123          | 140          | 145          | 158          | 227          | 227          | 211                       | 2.5             | 2.5              | 17.1                 | 16.8   |
| —          | 143   | —     | 156.6 | 123                            | —            | 140          | 145          | 158          | 227          | —            | —                         | 2.5             | 2.5              | 19.4                 | —      |
| —          | 135   | 165   | 141   | 126.5                          | 129          | 134          | 138          | 142          | 171          | 173.5        | 167                       | 2               | 1                | 2.44                 | 2.4    |
| NF         | 143.5 | 191.5 | 153   | 131                            | 131          | 141          | 146          | 156          | 204          | 204          | 196                       | 2               | 2                | 5.57                 | 5.46   |
| —          | 143.5 | —     | 153.9 | 131                            | —            | 141          | 146          | 156          | 204          | —            | —                         | 2               | 2                | 5.97                 | —      |
| —          | 143.5 | 191.5 | 153   | 131                            | 131          | 141          | 146          | 156          | 204          | 204          | 196                       | 2               | 2                | 8.19                 | 8.03   |
| —          | 143.5 | —     | 153.9 | 131                            | —            | 141          | 146          | 156          | 204          | —            | —                         | 2               | 2                | 9.18                 | —      |
| NF         | 154   | 226   | 168.5 | 133                            | 133          | 151          | 156          | 171          | 247          | 247          | 230                       | 2.5             | 2.5              | 12.8                 | 12.5   |

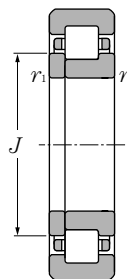
④ Does not apply to side of the outer ring rib of type NF bearings.



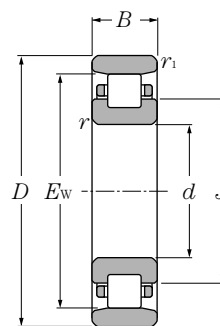
Type NU



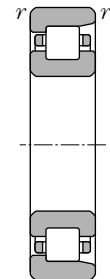
Type NJ



Type NUP



Type N



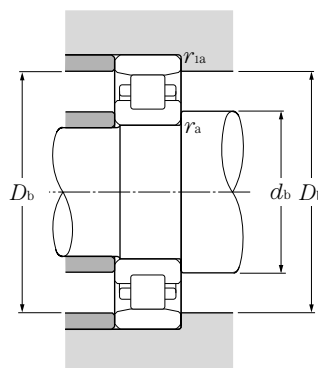
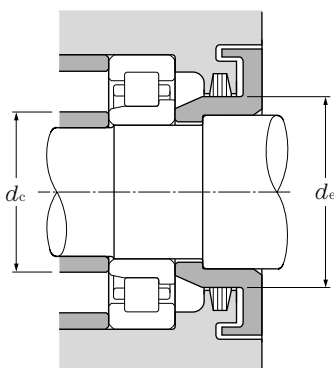
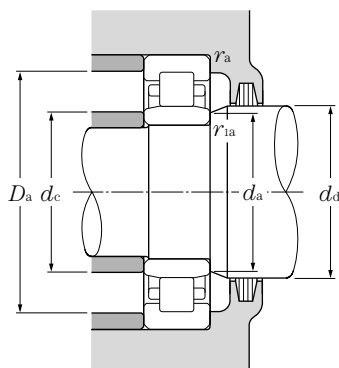
Type NF

## $d$ 120~150mm

| Boundary dimensions |     |     |                           |                            | Basic load ratings |          |         |          | Limiting speeds <sup>①</sup> |       | Bearing numbers |            |             |           |
|---------------------|-----|-----|---------------------------|----------------------------|--------------------|----------|---------|----------|------------------------------|-------|-----------------|------------|-------------|-----------|
| $d$                 | mm  |     |                           |                            | dynamic            | static   | dynamic | static   | rpm                          |       | type<br>NU      | type<br>NJ | type<br>NUP | type<br>N |
|                     | $D$ | $B$ | $r_{s \min}$ <sup>②</sup> | $r_{1s \min}$ <sup>②</sup> | $C_r$              | $C_{or}$ | $C_r$   | $C_{or}$ | grease                       | oil   |                 |            |             |           |
| 120                 | 260 | 55  | 3                         | 3                          | 530                | 610      | 54,000  | 62,000   | 2,400                        | 2,800 | NU324E          | NJ         | NUP         | —         |
|                     | 260 | 86  | 3                         | 3                          | 710                | 920      | 72,500  | 93,500   | 2,400                        | 2,800 | NU2324          | NJ         | NUP         | N         |
|                     | 260 | 86  | 3                         | 3                          | 795                | 1,030    | 81,000  | 105,000  | 2,200                        | 2,500 | NU2324E         | NJ         | NUP         | —         |
| 130                 | 200 | 33  | 2                         | 1.1                        | 172                | 238      | 17,500  | 24,200   | 3,400                        | 4,000 | NU1026          | NJ         | NUP         | N         |
|                     | 230 | 40  | 3                         | 3                          | 270                | 340      | 27,600  | 35,000   | 2,900                        | 3,400 | NU226           | NJ         | NUP         | N         |
|                     | 230 | 40  | 3                         | 3                          | 365                | 455      | 37,000  | 46,000   | 2,600                        | 3,100 | NU226E          | NJ         | NUP         | —         |
|                     | 230 | 64  | 3                         | 3                          | 380                | 530      | 38,500  | 54,000   | 2,600                        | 3,100 | NU2226          | NJ         | NUP         | N         |
|                     | 230 | 64  | 3                         | 3                          | 530                | 735      | 54,000  | 75,000   | 2,300                        | 2,700 | NU2226E         | NJ         | NUP         | —         |
|                     | 280 | 58  | 4                         | 4                          | 560                | 665      | 57,000  | 68,000   | 2,500                        | 2,900 | NU326           | NJ         | NUP         | N         |
|                     | 280 | 58  | 4                         | 4                          | 615                | 735      | 63,000  | 75,000   | 2,200                        | 2,600 | NU326E          | NJ         | NUP         | —         |
|                     | 280 | 93  | 4                         | 4                          | 840                | 1,130    | 85,500  | 115,000  | 2,200                        | 2,600 | NU2326          | NJ         | NUP         | N         |
| 140                 | 280 | 93  | 4                         | 4                          | 920                | 1,230    | 94,000  | 126,000  | 2,000                        | 2,300 | NU2326E         | NJ         | NUP         | —         |
|                     | 210 | 33  | 2                         | 1.1                        | 176                | 250      | 17,900  | 25,500   | 3,200                        | 3,800 | NU1028          | NJ         | NUP         | N         |
|                     | 250 | 42  | 3                         | 3                          | 310                | 400      | 31,500  | 40,500   | 2,700                        | 3,100 | NU228           | NJ         | NUP         | N         |
|                     | 250 | 42  | 3                         | 3                          | 395                | 515      | 40,000  | 52,500   | 2,400                        | 2,800 | NU228E          | NJ         | NUP         | —         |
|                     | 250 | 68  | 3                         | 3                          | 445                | 635      | 45,500  | 64,500   | 2,400                        | 2,800 | NU2228          | NJ         | NUP         | N         |
|                     | 250 | 68  | 3                         | 3                          | 575                | 835      | 58,500  | 85,000   | 2,100                        | 2,500 | NU2228E         | NJ         | NUP         | —         |
|                     | 300 | 62  | 4                         | 4                          | 615                | 745      | 63,000  | 76,000   | 2,300                        | 2,700 | NU328           | NJ         | NUP         | N         |
|                     | 300 | 62  | 4                         | 4                          | 665                | 795      | 67,500  | 81,500   | 2,100                        | 2,400 | NU328E          | NJ         | NUP         | —         |
| 150                 | 300 | 102 | 4                         | 4                          | 920                | 1,250    | 94,000  | 127,000  | 2,000                        | 2,300 | NU2328          | NJ         | NUP         | N         |
|                     | 300 | 102 | 4                         | 4                          | 1,020              | 1,380    | 104,000 | 141,000  | 1,800                        | 2,100 | NU2328E         | NJ         | NUP         | —         |
|                     | 225 | 35  | 2.1                       | 1.5                        | 202                | 294      | 20,600  | 29,900   | 3,000                        | 3,500 | NU1030          | NJ         | NUP         | N         |
|                     | 270 | 45  | 3                         | 3                          | 345                | 435      | 35,000  | 44,500   | 2,500                        | 2,900 | NU230           | NJ         | NUP         | N         |
|                     | 270 | 45  | 3                         | 3                          | 450                | 595      | 45,500  | 60,500   | 2,200                        | 2,600 | NU230E          | NJ         | NUP         | —         |
|                     | 270 | 73  | 3                         | 3                          | 500                | 710      | 51,000  | 72,500   | 2,200                        | 2,600 | NU2230          | NJ         | NUP         | N         |
|                     | 270 | 73  | 3                         | 3                          | 660                | 980      | 67,500  | 100,000  | 2,000                        | 2,400 | NU2230E         | NJ         | NUP         | —         |
|                     | 320 | 65  | 4                         | 4                          | 665                | 805      | 67,500  | 82,500   | 2,100                        | 2,500 | NU330           | NJ         | NUP         | N         |
| 160                 | 320 | 65  | 4                         | 4                          | 760                | 920      | 77,500  | 94,000   | 1,900                        | 2,300 | NU330E          | NJ         | NUP         | —         |
|                     | 320 | 108 | 4                         | 4                          | 1,020              | 1,400    | 104,000 | 143,000  | 1,900                        | 2,200 | NU2330          | NJ         | NUP         | N         |
|                     | 320 | 108 | 4                         | 4                          | 1,160              | 1,600    | 118,000 | 163,000  | 1,700                        | 2,000 | NU2330E         | NJ         | NUP         | —         |
|                     | 240 | 38  | 2.1                       | 1.5                        | 238                | 340      | 24,200  | 35,000   | 2,800                        | 3,300 | NU1032          | NJ         | NUP         | N         |
| 160                 | 290 | 48  | 3                         | 3                          | 430                | 570      | 43,500  | 58,000   | 2,300                        | 2,700 | NU232           | NJ         | NUP         | N         |
|                     | 290 | 48  | 3                         | 3                          | 500                | 665      | 51,000  | 68,000   | 2,100                        | 2,400 | NU232E          | NJ         | NUP         | —         |

① This value achieved with machined cages; when pressed cages are used, 80% of this value is acceptable.

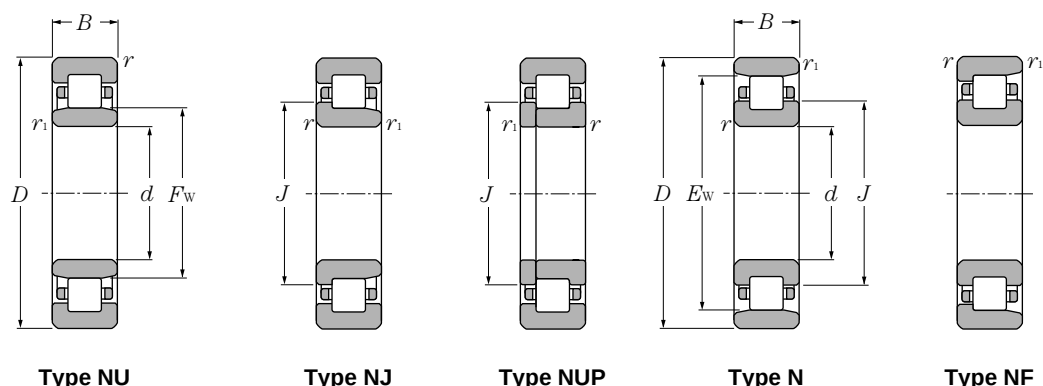
② Minimal allowable dimension for chamfer dimension  $r$  or  $r_1$ .



**Equivalent bearing load**  
**dynamic**  
 $P_r = F_r$   
**static**  
 $P_{or} = F_r$

| Dimensions |       |       |       | Abutment and fillet dimensions |              |              |              |              |              |              |                           |                 |                | Mass                 |        |
|------------|-------|-------|-------|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------------------|-----------------|----------------|----------------------|--------|
| type       | mm    |       |       | mm                             |              |              |              |              |              |              |                           |                 |                | kg                   |        |
| NF         | $F_w$ | $E_w$ | $J$   | $d_a$<br>min                   | $d_b$<br>min | $d_c$<br>max | $d_d$<br>min | $d_e$<br>min | $D_a$<br>max | $D_b$<br>max | $D_b$<br>min <sup>④</sup> | $r_{as}$<br>max | $r'ias$<br>max | type NU<br>(approx.) | type N |
| —          | 154   | —     | 169.2 | 133                            | —            | 151          | 156          | 171          | 247          | —            | —                         | 2.5             | 2.5            | 13.9                 | —      |
| —          | 154   | 226   | 168.5 | 133                            | 133          | 151          | 156          | 171          | 247          | 247          | 230                       | 2.5             | 2.5            | 21.5                 | 21.1   |
| —          | 154   | —     | 169.2 | 133                            | —            | 151          | 156          | 171          | 247          | —            | —                         | 2.5             | 2.5            | 26.1                 | —      |
| —          | 148   | 182   | 154.8 | 136.5                          | 139          | 146          | 151          | 156          | 191          | 193.5        | 184                       | 2               | 1              | 3.69                 | 3.63   |
| NF         | 156   | 204   | 165.5 | 143                            | 143          | 151          | 158          | 168          | 217          | 217          | 208                       | 2.5             | 2.5            | 6.3                  | 6.17   |
| —          | 153.5 | —     | 164.7 | 143                            | —            | 151          | 158          | 168          | 217          | —            | —                         | 2.5             | 2.5            | 6.9                  | —      |
| —          | 156   | 204   | 165.5 | 143                            | 143          | 151          | 158          | 168          | 217          | 217          | 208                       | 2.5             | 2.5            | 10.2                 | 10     |
| —          | 153.5 | —     | 164.7 | 143                            | —            | 151          | 158          | 168          | 217          | —            | —                         | 2.5             | 2.5            | 11.8                 | —      |
| NF         | 167   | 243   | 182   | 146                            | 146          | 164          | 169          | 184          | 264          | 264          | 247                       | 3               | 3              | 17.4                 | 17     |
| —          | 167   | —     | 183   | 146                            | —            | 164          | 169          | 184          | 264          | —            | —                         | 3               | 3              | 19.4                 | —      |
| —          | 167   | 243   | 182   | 146                            | 146          | 164          | 169          | 184          | 264          | 264          | 247                       | 3               | 3              | 26.9                 | 26.4   |
| —          | 167   | —     | 183   | 146                            | —            | 164          | 169          | 184          | 264          | —            | —                         | 3               | 3              | 30.9                 | —      |
| —          | 158   | 192   | 164.8 | 146.5                          | 149          | 156          | 161          | 166          | 201          | 203.5        | 194                       | 2               | 1              | 4.05                 | 3.98   |
| NF         | 169   | 221   | 179.5 | 153                            | 153          | 166          | 171          | 182          | 237          | 237          | 225                       | 2.5             | 2.5            | 7.88                 | 7.72   |
| —          | 169   | —     | 180.2 | 153                            | —            | 166          | 171          | 182          | 237          | —            | —                         | 2.5             | 2.5            | 8.73                 | —      |
| —          | 169   | 221   | 179.5 | 153                            | 153          | 166          | 171          | 182          | 237          | 237          | 225                       | 2.5             | 2.5            | 12.9                 | 12.6   |
| —          | 169   | —     | 180.2 | 153                            | —            | 166          | 171          | 182          | 237          | —            | —                         | 2.5             | 2.5            | 15.8                 | —      |
| NF         | 180   | 260   | 196   | 156                            | 156          | 176          | 182          | 198          | 284          | 284          | 265                       | 3               | 3              | 21.2                 | 20.7   |
| —          | 180   | —     | 196.8 | 156                            | —            | 176          | 182          | 198          | 284          | —            | —                         | 3               | 3              | 23.2                 | —      |
| —          | 180   | 260   | 196   | 156                            | 156          | 176          | 182          | 198          | 284          | 284          | 265                       | 3               | 3              | 33.8                 | 33.1   |
| —          | 180   | —     | 196.8 | 156                            | —            | 176          | 182          | 198          | 284          | —            | —                         | 3               | 3              | 38.7                 | —      |
| —          | 169.5 | 205.5 | 176.7 | 158                            | 161          | 167          | 173          | 178          | 214          | 217          | 207.5                     | 2               | 1.5            | 4.77                 | 4.7    |
| NF         | 182   | 238   | 193   | 163                            | 163          | 179          | 184          | 196          | 257          | 257          | 242                       | 2.5             | 2.5            | 9.92                 | 9.72   |
| —          | 182   | —     | 194   | 163                            | —            | 179          | 184          | 196          | 257          | —            | —                         | 2.5             | 2.5            | 11                   | —      |
| —          | 182   | 238   | 193   | 163                            | 163          | 179          | 184          | 196          | 257          | 257          | 242                       | 2.5             | 2.5            | 16.3                 | 16     |
| —          | 182   | —     | 194   | 163                            | —            | 179          | 184          | 196          | 257          | —            | —                         | 2.5             | 2.5            | 19.7                 | —      |
| NF         | 193   | 277   | 210   | 166                            | 166          | 190          | 195          | 213          | 304          | 304          | 282                       | 3               | 3              | 25.3                 | 24.7   |
| —          | 193   | —     | 211   | 166                            | —            | 190          | 195          | 213          | 304          | —            | —                         | 3               | 3              | 28.4                 | —      |
| —          | 193   | 277   | 210   | 166                            | 166          | 190          | 195          | 213          | 304          | 304          | 282                       | 3               | 3              | 40.6                 | 39.8   |
| —          | 193   | —     | 211   | 166                            | —            | 190          | 195          | 213          | 304          | —            | —                         | 3               | 3              | 47.2                 | —      |
| —          | 180   | 220   | 188   | 168                            | 171          | 178          | 184          | 189          | 229          | 232          | 222                       | 2               | 1.5            | 5.9                  | 5.81   |
| NF         | 195   | 255   | 207   | 173                            | 173          | 192          | 197          | 210          | 277          | 277          | 259                       | 2.5             | 2.5            | 13.7                 | 13.4   |
| —          | 195   | —     | 207.8 | 173                            | —            | 192          | 197          | 210          | 277          | —            | —                         | 2.5             | 2.5            | 15.6                 | —      |

④ Does not apply to side of the outer ring rib of type NF bearings.



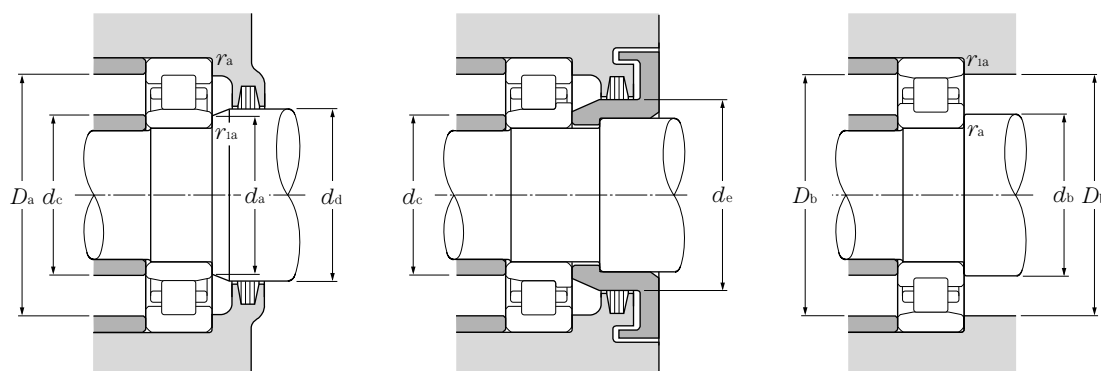
## $d$ 160~200mm

| Boundary dimensions |     |     |                           |                            | Basic load ratings |          |         |          | Limiting speeds <sup>①</sup> |       | Bearing numbers |            |             |           |
|---------------------|-----|-----|---------------------------|----------------------------|--------------------|----------|---------|----------|------------------------------|-------|-----------------|------------|-------------|-----------|
| mm                  |     |     |                           |                            | dynamic            | static   | dynamic | static   | rpm                          |       | type<br>NU      | type<br>NJ | type<br>NUP | type<br>N |
| $d$                 | $D$ | $B$ | $r_{s \min}$ <sup>②</sup> | $r_{1s \min}$ <sup>②</sup> | $C_r$              | $C_{or}$ | $C_r$   | $C_{or}$ | grease                       | oil   |                 |            |             |           |
| 160                 | 290 | 80  | 3                         | 3                          | 630                | 940      | 64,500  | 96,000   | 2,100                        | 2,400 | NU2232          | NJ         | NUP         | N         |
|                     | 290 | 80  | 3                         | 3                          | 810                | 1,190    | 82,500  | 121,000  | 1,900                        | 2,200 | NU2232E         | NJ         | NUP         | —         |
|                     | 340 | 68  | 4                         | 4                          | 700                | 875      | 71,000  | 89,500   | 2,000                        | 2,300 | NU332           | NJ         | NUP         | N         |
|                     | 340 | 68  | 4                         | 4                          | 860                | 1,050    | 87,500  | 107,000  | 1,800                        | 2,100 | NU332E          | NJ         | NUP         | —         |
|                     | 340 | 114 | 4                         | 4                          | 1,070              | 1,520    | 109,000 | 155,000  | 1,700                        | 2,000 | NU2332          | NJ         | NUP         | N         |
|                     | 340 | 114 | 4                         | 4                          | 1,310              | 1,820    | 134,000 | 186,000  | 1,600                        | 1,900 | NU2332E         | NJ         | NUP         | —         |
| 170                 | 260 | 42  | 2.1                       | 2.1                        | 278                | 400      | 28,300  | 41,000   | 2,600                        | 3,000 | NU1034          | NJ         | NUP         | N         |
|                     | 310 | 52  | 4                         | 4                          | 475                | 635      | 48,500  | 65,000   | 2,200                        | 2,500 | NU234           | NJ         | NUP         | N         |
|                     | 310 | 52  | 4                         | 4                          | 605                | 800      | 61,500  | 81,500   | 2,000                        | 2,300 | NU234E          | NJ         | NUP         | —         |
|                     | 310 | 86  | 4                         | 4                          | 715                | 1,080    | 73,000  | 110,000  | 2,000                        | 2,300 | NU2234          | NJ         | NUP         | N         |
|                     | 310 | 86  | 4                         | 4                          | 965                | 1,410    | 98,500  | 144,000  | 1,800                        | 2,100 | NU2234E         | NJ         | NUP         | —         |
|                     | 360 | 72  | 4                         | 4                          | 795                | 1,010    | 81,500  | 103,000  | 1,800                        | 2,200 | NU334           | NJ         | NUP         | N         |
| 180                 | 360 | 120 | 4                         | 4                          | 1,220              | 1,750    | 125,000 | 179,000  | 1,600                        | 1,900 | NU2334          | NJ         | NUP         | N         |
|                     | 280 | 46  | 2.1                       | 2.1                        | 340                | 485      | 35,000  | 49,500   | 2,400                        | 2,900 | NU1036          | NJ         | NUP         | N         |
|                     | 320 | 52  | 4                         | 4                          | 495                | 675      | 50,500  | 69,000   | 2,000                        | 2,400 | NU236           | NJ         | NUP         | N         |
|                     | 320 | 52  | 4                         | 4                          | 625                | 850      | 64,000  | 87,000   | 1,800                        | 2,200 | NU236E          | NJ         | NUP         | —         |
|                     | 320 | 86  | 4                         | 4                          | 745                | 1,140    | 76,000  | 117,000  | 1,800                        | 2,200 | NU2236          | NJ         | NUP         | N         |
|                     | 320 | 86  | 4                         | 4                          | 1,010              | 1,510    | 103,000 | 154,000  | 1,600                        | 1,900 | NU2236E         | NJ         | NUP         | —         |
| 190                 | 380 | 75  | 4                         | 4                          | 905                | 1,150    | 92,000  | 118,000  | 1,700                        | 2,000 | NU336           | NJ         | NUP         | N         |
|                     | 380 | 126 | 4                         | 4                          | 1,380              | 1,990    | 141,000 | 203,000  | 1,500                        | 1,800 | NU2336          | NJ         | NUP         | N         |
|                     | 290 | 46  | 2.1                       | 2.1                        | 350                | 510      | 36,000  | 52,000   | 2,300                        | 2,700 | NU1038          | NJ         | NUP         | N         |
|                     | 340 | 55  | 4                         | 4                          | 555                | 770      | 56,500  | 78,500   | 1,900                        | 2,200 | NU238           | NJ         | NUP         | N         |
|                     | 340 | 55  | 4                         | 4                          | 695                | 955      | 71,000  | 97,500   | 1,700                        | 2,000 | NU238E          | NJ         | NUP         | —         |
|                     | 340 | 92  | 4                         | 4                          | 830                | 1,290    | 84,500  | 131,000  | 1,700                        | 2,000 | NU2238          | NJ         | NUP         | N         |
| 200                 | 340 | 92  | 4                         | 4                          | 1,100              | 1,670    | 113,000 | 170,000  | 1,500                        | 1,800 | NU2238E         | NJ         | NUP         | —         |
|                     | 400 | 78  | 5                         | 5                          | 975                | 1,260    | 99,500  | 129,000  | 1,600                        | 1,900 | NU338           | NJ         | NUP         | N         |
|                     | 400 | 132 | 5                         | 5                          | 1,520              | 2,220    | 155,000 | 226,000  | 1,400                        | 1,700 | NU2338          | NJ         | NUP         | N         |
|                     | 310 | 51  | 2.1                       | 2.1                        | 390                | 580      | 40,000  | 59,500   | 2,200                        | 2,600 | NU1040          | NJ         | NUP         | N         |
|                     | 360 | 58  | 4                         | 4                          | 620                | 865      | 63,500  | 88,500   | 1,800                        | 2,100 | NU240           | NJ         | NUP         | N         |
|                     | 360 | 58  | 4                         | 4                          | 765                | 1,060    | 78,000  | 108,000  | 1,600                        | 1,900 | NU240E          | NJ         | NUP         | —         |
| 200                 | 360 | 98  | 4                         | 4                          | 925                | 1,440    | 94,000  | 147,000  | 1,600                        | 1,900 | NU2240          | NJ         | NUP         | N         |
|                     | 360 | 98  | 4                         | 4                          | 1,220              | 1,870    | 125,000 | 191,000  | 1,500                        | 1,700 | NU2240E         | NJ         | NUP         | —         |
|                     | 420 | 80  | 5                         | 5                          | 975                | 1,270    | 99,500  | 130,000  | 1,500                        | 1,800 | NU340           | NJ         | NUP         | N         |

① This value achieved with machined cages; when pressed cages are used, 80% of this value is acceptable.

② Minimal allowable dimension for chamfer dimension  $r$  or  $r_1$ .

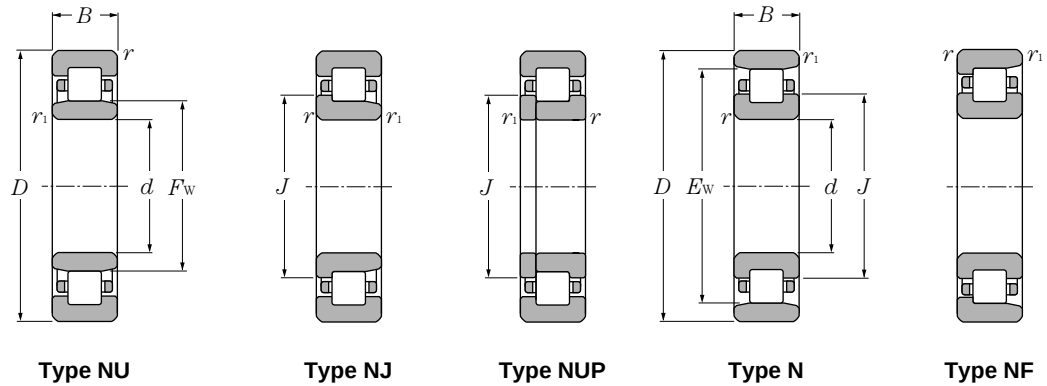




**Equivalent bearing load**  
**dynamic**  
 $P_r = F_r$   
**static**  
 $P_{or} = F_r$

| Dimensions |       |       |       | Abutment and fillet dimensions |              |              |              |              |              |              |                           |                 |                   | Mass                 |        |
|------------|-------|-------|-------|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------------------|-----------------|-------------------|----------------------|--------|
| type       | mm    |       |       | mm                             |              |              |              |              |              |              |                           |                 |                   | kg                   |        |
| NF         | $F_w$ | $E_w$ | $J$   | $d_a$<br>min                   | $d_b$<br>min | $d_c$<br>max | $d_d$<br>min | $d_e$<br>min | $D_a$<br>max | $D_b$<br>max | $D_b$<br>min <sup>④</sup> | $r_{as}$<br>max | $r'_{ias}$<br>max | type NU<br>(approx.) | type N |
| —          | 195   | 255   | 207   | 173                            | 173          | 192          | 197          | 210          | 277          | 277          | 259                       | 2.5             | 2.5               | 22                   | 21.6   |
| —          | 193   | —     | 206.6 | 173                            | —            | 192          | 197          | 210          | 277          | —            | —                         | 2.5             | 2.5               | 25.1                 | —      |
| NF         | 208   | 292   | 225   | 176                            | 176          | 200          | 211          | 228          | 324          | 324          | 297                       | 3               | 3                 | 31.3                 | 30.6   |
| —          | 204   | —     | 223.2 | 176                            | —            | 200          | 211          | 228          | 324          | —            | —                         | 3               | 3                 | 34                   | —      |
| —          | 208   | 292   | 225   | 176                            | 176          | 200          | 211          | 228          | 324          | 324          | 297                       | 3               | 3                 | 50.5                 | 49.5   |
| —          | 204   | —     | 223.2 | 176                            | —            | 200          | 211          | 228          | 324          | —            | —                         | 3               | 3                 | 56                   | —      |
| —          | 193   | 237   | 201.8 | 181                            | 181          | 190          | 197          | 203          | 249          | 249          | 239                       | 2               | 2                 | 7.88                 | 7.76   |
| NF         | 208   | 272   | 220.5 | 186                            | 186          | 204          | 211          | 223          | 294          | 294          | 277                       | 3               | 3                 | 17                   | 16.7   |
| —          | 207   | —     | 221.4 | 186                            | —            | 204          | 211          | 223          | 294          | —            | —                         | 3               | 3                 | 19.6                 | —      |
| —          | 208   | 272   | 220.5 | 186                            | 186          | 204          | 211          | 223          | 294          | 294          | 277                       | 3               | 3                 | 27.2                 | 26.7   |
| —          | 205   | —     | 220.2 | 186                            | —            | 204          | 211          | 223          | 294          | —            | —                         | 3               | 3                 | 31                   | —      |
| NF         | 220   | 310   | 238   | 186                            | 186          | 216          | 223          | 241          | 344          | 344          | 315                       | 3               | 3                 | 37                   | 36.1   |
| —          | 220   | 310   | 238   | 186                            | 186          | 216          | 223          | 241          | 344          | 344          | 315                       | 3               | 3                 | 59.5                 | 58.3   |
| —          | 205   | 255   | 215   | 191                            | 191          | 203          | 209          | 216          | 269          | 269          | 257                       | 2               | 2                 | 10.3                 | 10.1   |
| NF         | 218   | 282   | 230.5 | 196                            | 196          | 214          | 221          | 233          | 304          | 304          | 287                       | 3               | 3                 | 17.7                 | 17.3   |
| —          | 217   | —     | 231.4 | 196                            | —            | 214          | 221          | 233          | 304          | —            | —                         | 3               | 3                 | 20.4                 | —      |
| —          | 218   | 282   | 230.5 | 196                            | 196          | 214          | 221          | 233          | 304          | 304          | 287                       | 3               | 3                 | 28.4                 | 27.8   |
| —          | 215   | —     | 230.2 | 196                            | —            | 214          | 221          | 233          | 304          | —            | —                         | 3               | 3                 | 31.9                 | —      |
| NF         | 232   | 328   | 252   | 196                            | 196          | 227          | 235          | 255          | 364          | 364          | 333                       | 3               | 3                 | 44.2                 | 43.2   |
| —          | 232   | 328   | 252   | 196                            | 196          | 227          | 235          | 255          | 364          | 364          | 333                       | 3               | 3                 | 69.5                 | 68.1   |
| —          | 215   | 265   | 225   | 201                            | 201          | 213          | 219          | 226          | 279          | 279          | 267                       | 2               | 2                 | 10.7                 | 10.5   |
| NF         | 231   | 299   | 244.5 | 206                            | 206          | 227          | 234          | 247          | 324          | 324          | 304                       | 3               | 3                 | 21.3                 | 20.8   |
| —          | 230   | —     | 245.2 | 206                            | —            | 227          | 234          | 247          | 324          | —            | —                         | 3               | 3                 | 24.2                 | —      |
| —          | 231   | 299   | 244.5 | 206                            | 206          | 227          | 234          | 247          | 324          | 324          | 304                       | 3               | 3                 | 34.4                 | 33.7   |
| —          | 228   | —     | 244   | 206                            | —            | 227          | 234          | 247          | 324          | —            | —                         | 3               | 3                 | 39.5                 | —      |
| NF         | 245   | 345   | 265   | 210                            | 210          | 240          | 248          | 268          | 380          | 380          | 351                       | 4               | 4                 | 49.4                 | 48.3   |
| —          | 245   | 345   | 265   | 210                            | 210          | 240          | 248          | 268          | 380          | 380          | 351                       | 4               | 4                 | 80.5                 | 78.9   |
| —          | 229   | 281   | 239.4 | 211                            | 211          | 226          | 233          | 241          | 299          | 299          | 283                       | 2               | 2                 | 13.9                 | 13.7   |
| NF         | 244   | 316   | 258   | 216                            | 216          | 240          | 247          | 261          | 344          | 344          | 321                       | 3               | 3                 | 25.3                 | 24.8   |
| —          | 243   | —     | 259   | 216                            | —            | 240          | 247          | 261          | 344          | —            | —                         | 3               | 3                 | 28.1                 | —      |
| —          | 244   | 316   | 258   | 216                            | 216          | 240          | 247          | 261          | 344          | 344          | 321                       | 3               | 3                 | 41.3                 | 40.5   |
| —          | 241   | —     | 257.8 | 216                            | —            | 240          | 247          | 261          | 344          | —            | —                         | 3               | 3                 | 47.8                 | —      |
| NF         | 260   | 360   | 280   | 220                            | 220          | 254          | 263          | 283          | 400          | 400          | 366                       | 4               | 4                 | 55.8                 | 54.5   |

④ Does not apply to side of the outer ring rib of type NF bearings.

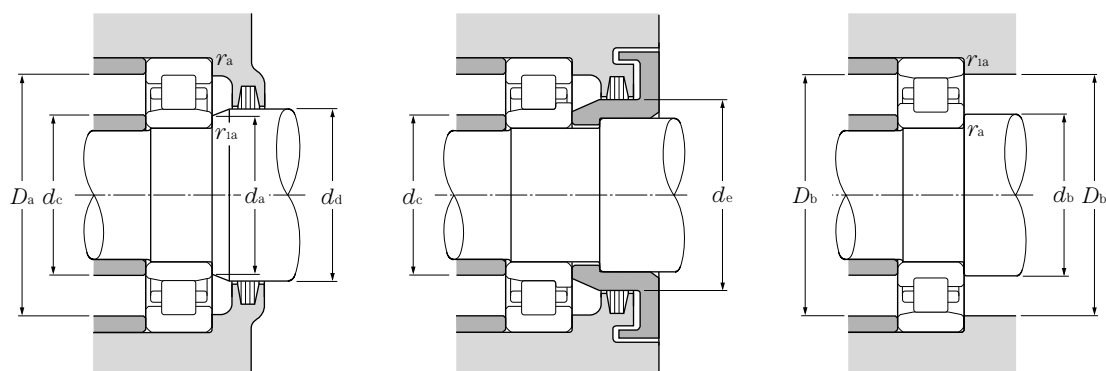


**d 200~360mm**

| Boundary dimensions |     |     |                                 |                                  | Basic load ratings |                 |                |                 | Limiting speeds <sup>①</sup> |       | Bearing numbers |            |             |           |
|---------------------|-----|-----|---------------------------------|----------------------------------|--------------------|-----------------|----------------|-----------------|------------------------------|-------|-----------------|------------|-------------|-----------|
| mm                  |     |     |                                 |                                  | dynamic            | static          | dynamic        | static          | rpm                          |       | type<br>NU      | type<br>NJ | type<br>NUP | type<br>N |
| d                   | D   | B   | r <sub>s min</sub> <sup>②</sup> | r <sub>1s min</sub> <sup>②</sup> | C <sub>r</sub>     | C <sub>or</sub> | C <sub>r</sub> | C <sub>or</sub> | grease                       | oil   |                 |            |             |           |
| <b>200</b>          | 420 | 138 | 5                               | 5                                | 1,510              | 2,240           | 154,000        | 229,000         | 1,400                        | 1,600 | NU2340          | NJ         | NUP         | N         |
| <b>220</b>          | 340 | 56  | 3                               | 3                                | 500                | 750             | 51,000         | 76,500          | 2,000                        | 2,300 | NU1044          | NJ         | NUP         | N         |
|                     | 400 | 65  | 4                               | 4                                | 760                | 1,080           | 77,500         | 110,000         | 1,600                        | 1,900 | NU244           | NJ         | NUP         | N         |
|                     | 400 | 108 | 4                               | 4                                | 1,140              | 1,810           | 116,000        | 184,000         | 1,500                        | 1,700 | NU2244          | NJ         | NUP         | N         |
|                     | 460 | 88  | 5                               | 5                                | 1,190              | 1,570           | 122,000        | 161,000         | 1,400                        | 1,600 | NU344           | NJ         | NUP         | N         |
|                     | 460 | 145 | 5                               | 5                                | 1,780              | 2,620           | 181,000        | 268,000         | 1,200                        | 1,400 | NU2344          | NJ         | NUP         | N         |
| <b>240</b>          | 360 | 56  | 3                               | 3                                | 530                | 820             | 54,000         | 83,500          | 1,800                        | 2,100 | NU1048          | NJ         | NUP         | N         |
|                     | 440 | 72  | 4                               | 4                                | 935                | 1,340           | 95,500         | 136,000         | 1,500                        | 1,700 | NU248           | NJ         | NUP         | N         |
|                     | 440 | 120 | 4                               | 4                                | 1,440              | 2,320           | 146,000        | 236,000         | 1,300                        | 1,600 | NU2248          | NJ         | NUP         | N         |
|                     | 500 | 95  | 5                               | 5                                | 1,430              | 1,950           | 146,000        | 198,000         | 1,300                        | 1,500 | NU348           | NJ         | NUP         | N         |
|                     | 500 | 155 | 5                               | 5                                | 2,100              | 3,200           | 214,000        | 325,000         | 1,100                        | 1,300 | NU2348          | NJ         | NUP         | N         |
| <b>260</b>          | 400 | 65  | 4                               | 4                                | 645                | 1,000           | 65,500         | 102,000         | 1,600                        | 1,900 | NU1052          | NJ         | NUP         | N         |
|                     | 480 | 80  | 5                               | 5                                | 1,150              | 1,660           | 117,000        | 170,000         | 1,300                        | 1,600 | NU252           | NJ         | NUP         | N         |
|                     | 480 | 130 | 5                               | 5                                | 1,780              | 2,930           | 182,000        | 299,000         | 1,200                        | 1,400 | NU2252          | NJ         | NUP         | N         |
|                     | 540 | 102 | 6                               | 6                                | 1,620              | 2,230           | 165,000        | 228,000         | 1,200                        | 1,400 | NU352           | NJ         | NUP         | N         |
|                     | 540 | 165 | 6                               | 6                                | 2,340              | 3,600           | 239,000        | 365,000         | 1,000                        | 1,200 | NU2352          | NJ         | NUP         | N         |
| <b>280</b>          | 420 | 65  | 4                               | 4                                | 660                | 1,050           | 67,000         | 107,000         | 1,500                        | 1,800 | NU1056          | NJ         | NUP         | N         |
|                     | 500 | 80  | 5                               | 5                                | 1,190              | 1,760           | 121,000        | 180,000         | 1,200                        | 1,400 | NU256           | NJ         | NUP         | N         |
|                     | 500 | 130 | 5                               | 5                                | 1,840              | 3,100           | 188,000        | 315,000         | 1,100                        | 1,300 | NU2256          | NJ         | NUP         | N         |
|                     | 580 | 108 | 6                               | 6                                | 1,820              | 2,540           | 185,000        | 259,000         | 1,100                        | 1,200 | NU356           | NJ         | NUP         | N         |
|                     | 580 | 175 | 6                               | 6                                | 2,700              | 4,250           | 275,000        | 430,000         | 920                          | 1,100 | NU2356          | NJ         | NUP         | N         |
| <b>300</b>          | 460 | 74  | 4                               | 4                                | 855                | 1,340           | 87,000         | 137,000         | 1,400                        | 1,600 | NU1060          | NJ         | NUP         | N         |
|                     | 540 | 85  | 5                               | 5                                | 1,400              | 2,070           | 143,000        | 211,000         | 1,100                        | 1,300 | NU260           | NJ         | NUP         | N         |
|                     | 540 | 140 | 5                               | 5                                | 2,180              | 3,650           | 223,000        | 370,000         | 1,000                        | 1,200 | NU2260          | NJ         | NUP         | N         |
| <b>320</b>          | 480 | 74  | 4                               | 4                                | 875                | 1,410           | 89,500         | 143,000         | 1,300                        | 1,500 | NU1064          | NJ         | NUP         | N         |
|                     | 580 | 92  | 5                               | 5                                | 1,600              | 2,390           | 164,000        | 244,000         | 1,000                        | 1,200 | NU264           | NJ         | NUP         | N         |
|                     | 580 | 150 | 5                               | 5                                | 2,550              | 4,350           | 260,000        | 445,000         | 950                          | 1,100 | NU2264          | NJ         | NUP         | N         |
| <b>340</b>          | 520 | 82  | 5                               | 5                                | 1,050              | 1,670           | 107,000        | 170,000         | 1,200                        | 1,400 | NU1068          | NJ         | NUP         | N         |
| <b>360</b>          | 540 | 82  | 5                               | 5                                | 1,080              | 1,750           | 110,000        | 179,000         | 1,100                        | 1,300 | NU1072          | NJ         | NUP         | N         |

① This value achieved with machined cages; when pressed cages are used, 80% of this value is acceptable.

② Minimal allowable dimension for chamfer dimension  $r$  or  $r_1$ .



**Equivalent bearing load**  
**dynamic**  
 $P_r = F_r$   
**static**  
 $P_{or} = F_r$

| Dimensions |       |       |       | Abutment and fillet dimensions |              |              |              |              |              |              |                           |                 |                  | Mass                 |        |
|------------|-------|-------|-------|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------------------|-----------------|------------------|----------------------|--------|
| type       | mm    |       |       | mm                             |              |              |              |              |              |              |                           |                 |                  | kg                   |        |
| NF         | $F_w$ | $E_w$ | $J$   | $d_a$<br>min                   | $d_b$<br>min | $d_c$<br>max | $d_d$<br>min | $d_e$<br>min | $D_a$<br>max | $D_b$<br>max | $D_b$<br>min <sup>④</sup> | $r_{as}$<br>max | $r_{1as}$<br>max | type NU<br>(approx.) | type N |
| —          | 260   | 360   | 280   | 220                            | 220          | 254          | 263          | 283          | 400          | 400          | 366                       | 4               | 4                | 92.6                 | 90.7   |
| —          | 250   | 310   | 262   | 233                            | 233          | 248          | 254          | 264          | 327          | 327          | 313                       | 2.5             | 2.5              | 18.2                 | 17.9   |
| NF         | 270   | 350   | 286   | 236                            | 236          | 266          | 273          | 289          | 384          | 384          | 355                       | 3               | 3                | 37.7                 | 37     |
| —          | 270   | 350   | 286   | 236                            | 236          | 266          | 273          | 289          | 384          | 384          | 355                       | 3               | 3                | 59                   | 57.8   |
| NF         | 284   | 396   | 307   | 240                            | 240          | 279          | 287          | 307          | 440          | 440          | 402                       | 4               | 4                | 73.4                 | 71.7   |
| —          | 284   | 396   | 307   | 240                            | 240          | 279          | 287          | 307          | 440          | 440          | 402                       | 4               | 4                | 116                  | 114    |
| —          | 270   | 330   | 282   | 253                            | 253          | 268          | 275          | 284          | 347          | 347          | 333                       | 2.5             | 2.5              | 19.6                 | 19.3   |
| NF         | 295   | 385   | 313   | 256                            | 256          | 293          | 298          | 316          | 424          | 424          | 390                       | 3               | 3                | 50.2                 | 49.2   |
| —          | 295   | 385   | 313   | 256                            | 256          | 293          | 298          | 316          | 424          | 424          | 390                       | 3               | 3                | 80                   | 78.4   |
| NF         | 310   | 430   | 335   | 260                            | 260          | 305          | 313          | 333          | 480          | 480          | 436                       | 4               | 4                | 93.4                 | 91.3   |
| —          | 310   | 430   | 335   | 260                            | 260          | 305          | 313          | 333          | 480          | 480          | 436                       | 4               | 4                | 147                  | 144    |
| —          | 296   | 364   | 309.6 | 276                            | 276          | 292          | 300          | 312          | 384          | 384          | 367                       | 3               | 3                | 29.1                 | 28.7   |
| NF         | 320   | 420   | 340   | 280                            | 280          | 318          | 323          | 343          | 460          | 460          | 426                       | 4               | 4                | 66.9                 | 65.6   |
| —          | 320   | 420   | 340   | 280                            | 280          | 318          | 323          | 343          | 460          | 460          | 426                       | 4               | 4                | 104                  | 102    |
| NF         | 336   | 464   | 362   | 284                            | 284          | 331          | 339          | 359          | 516          | 516          | 471                       | 5               | 5                | 117                  | 114    |
| —          | 336   | 464   | 362   | 284                            | 284          | 331          | 339          | 359          | 516          | 516          | 471                       | 5               | 5                | 182                  | 178    |
| —          | 316   | 384   | 329.6 | 296                            | 296          | 312          | 320          | 332          | 404          | 404          | 387                       | 3               | 3                | 30.9                 | 30.4   |
| NF         | 340   | 440   | 360   | 300                            | 300          | 336          | 343          | 365          | 480          | 480          | 446                       | 4               | 4                | 70.8                 | 69.4   |
| —          | 340   | 440   | 360   | 300                            | 300          | 336          | 343          | 365          | 480          | 480          | 446                       | 4               | 4                | 109                  | 107    |
| NF         | 362   | 498   | 390   | 304                            | 304          | 356          | 366          | 386          | 556          | 556          | 505                       | 5               | 5                | 142                  | 139    |
| —          | 362   | 498   | 390   | 304                            | 304          | 356          | 366          | 386          | 556          | 556          | 505                       | 5               | 5                | 222                  | 218    |
| —          | 340   | 420   | 356   | 316                            | 316          | 336          | 344          | 358          | 444          | 444          | 423                       | 3               | 3                | 43.6                 | 42.9   |
| NF         | 364   | 476   | 387   | 320                            | 320          | 361          | 368          | 392          | 520          | 520          | 482                       | 4               | 4                | 88.2                 | 86.4   |
| —          | 364   | 476   | 387   | 320                            | 320          | 361          | 368          | 392          | 520          | 520          | 482                       | 4               | 4                | 138                  | 135    |
| —          | 360   | 440   | 376   | 336                            | 336          | 356          | 364          | 378          | 464          | 464          | 443                       | 3               | 3                | 46                   | 45.3   |
| NF         | 390   | 510   | 415   | 340                            | 340          | 386          | 393          | 419          | 560          | 560          | 516                       | 4               | 4                | 111                  | 109    |
| —          | 390   | 510   | 415   | 340                            | 340          | 386          | 393          | 419          | 560          | 560          | 516                       | 4               | 4                | 172                  | 168    |
| —          | 385   | 475   | 403   | 360                            | 360          | 381          | 390          | 405          | 500          | 500          | 479                       | 4               | 4                | 61.8                 | 60.8   |
| —          | 405   | 495   | 423   | 380                            | 380          | 401          | 410          | 425          | 520          | 520          | 499                       | 4               | 4                | 64.7                 | 63.7   |

④ Does not apply to side of the outer ring rib of type NF bearings.





**Shaanxi Gainhui Heavy Industries Co., Ltd.**  
Bearing Manufacturer And Supplier In China

## BECAUSE WE ARE FOCUSED WE ARE PROFESSIONAL

We are committed to providing competitive bearing products and OEM services to global customers.



Founded in 2009, Shaanxi Gainhui Heavy Industries Co., Ltd. covers an area of 16,000 square meters, which is a professional bearing manufacturer and distributor in China. The company is committed to the design, manufacture and service of precision bearings, focusing on providing customers with reliable bearing products and cost-effective technical solutions.

The company adopts advanced production equipment and testing equipment, is equipped with a professional quality testing department, formulates a complete quality management system, and specializes in the production of high-precision, low-noise, and long-life bearings. Shaanxi Gainhui Heavy Industries Co., Ltd. insists on quality as the core, innovation as the driving force, promotes development through service, and sincerely provides services to customers all over the world.



### Contact us:

Website: [www.ghbearings.com](http://www.ghbearings.com)

Tel: +86-029-88692376

Mob/WhatsApp: +86-18710850036

Skype: tina.li72

E-mail: [info@ghbearings.com](mailto:info@ghbearings.com)

Add: NO.196, Changan South Road,  
Xi'an City, Shaanxi Province, China

