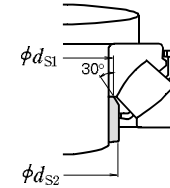
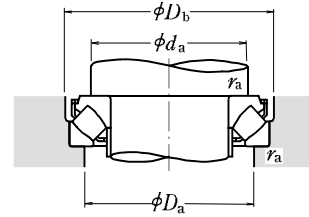
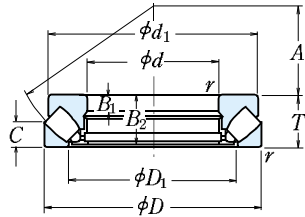
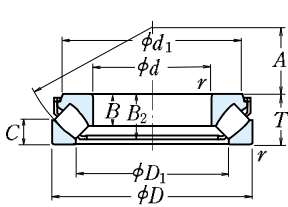


# THRUST SPHERICAL ROLLER BEARINGS

Bore Diameter 60 – 200 mm

NSK



**Dynamic Equivalent Load**  
 $P = 1.2F_r + F_a$   
**Static Equivalent Load**  
 $P_0 = 2.8F_r + F_a$   
 However,  $F_r/F_a \leq 0.55$  must be satisfied.

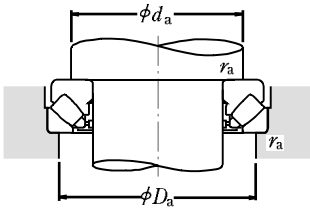
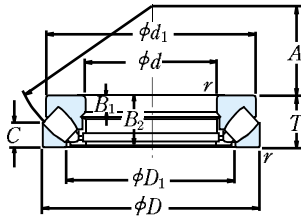
| Boundary Dimensions (mm) |          |          |                          | Basic Load Ratings       |                           |                            |                             | Limiting Speeds (min <sup>-1</sup> ) | Bearing Numbers |
|--------------------------|----------|----------|--------------------------|--------------------------|---------------------------|----------------------------|-----------------------------|--------------------------------------|-----------------|
| <i>d</i>                 | <i>D</i> | <i>T</i> | <i>r</i> <sub>min.</sub> | <i>C<sub>a</sub></i> (N) | <i>C<sub>0a</sub></i> (N) | <i>C<sub>a</sub></i> {kgf} | <i>C<sub>0a</sub></i> {kgf} | Oil                                  |                 |
| <b>60</b>                | 130      | 42       | 1.5                      | 330 000                  | 885 000                   | 33 500                     | 90 000                      | 2 600                                | <b>29412 E</b>  |
| <b>65</b>                | 140      | 45       | 2                        | 405 000                  | 1 100 000                 | 41 500                     | 112 000                     | 2 400                                | <b>29413 E</b>  |
| <b>70</b>                | 150      | 48       | 2                        | 450 000                  | 1 240 000                 | 46 000                     | 126 000                     | 2 400                                | <b>29414 E</b>  |
| <b>75</b>                | 160      | 51       | 2                        | 515 000                  | 1 430 000                 | 52 500                     | 146 000                     | 2 200                                | <b>29415 E</b>  |
| <b>80</b>                | 170      | 54       | 2.1                      | 575 000                  | 1 600 000                 | 58 500                     | 163 000                     | 2 000                                | <b>29416 E</b>  |
| <b>85</b>                | 150      | 39       | 1.5                      | 330 000                  | 1 040 000                 | 34 000                     | 106 000                     | 2 400                                | <b>29317 E</b>  |
|                          | 180      | 58       | 2.1                      | 630 000                  | 1 760 000                 | 64 500                     | 179 000                     | 1 900                                | <b>29417 E</b>  |
| <b>90</b>                | 155      | 39       | 1.5                      | 350 000                  | 1 080 000                 | 35 500                     | 110 000                     | 2 200                                | <b>29318 E</b>  |
|                          | 190      | 60       | 2.1                      | 695 000                  | 1 950 000                 | 70 500                     | 199 000                     | 1 800                                | <b>29418 E</b>  |
| <b>100</b>               | 170      | 42       | 1.5                      | 410 000                  | 1 280 000                 | 41 500                     | 131 000                     | 2 000                                | <b>29320 E</b>  |
|                          | 210      | 67       | 3                        | 840 000                  | 2 400 000                 | 86 000                     | 245 000                     | 1 600                                | <b>29420 E</b>  |
| <b>110</b>               | 190      | 48       | 2                        | 530 000                  | 1 710 000                 | 54 000                     | 174 000                     | 1 800                                | <b>29322 E</b>  |
|                          | 230      | 73       | 3                        | 1 010 000                | 2 930 000                 | 103 000                    | 299 000                     | 1 500                                | <b>29422 E</b>  |
| <b>120</b>               | 210      | 54       | 2.1                      | 645 000                  | 2 100 000                 | 65 500                     | 214 000                     | 1 600                                | <b>29324 E</b>  |
|                          | 250      | 78       | 4                        | 1 160 000                | 3 400 000                 | 119 000                    | 350 000                     | 1 400                                | <b>29424 E</b>  |
| <b>130</b>               | 225      | 58       | 2.1                      | 740 000                  | 2 450 000                 | 75 500                     | 250 000                     | 1 500                                | <b>29326 E</b>  |
|                          | 270      | 85       | 4                        | 1 330 000                | 3 900 000                 | 135 000                    | 400 000                     | 1 200                                | <b>29426 E</b>  |
| <b>140</b>               | 240      | 60       | 2.1                      | 840 000                  | 2 810 000                 | 85 500                     | 287 000                     | 1 400                                | <b>29328 E</b>  |
|                          | 280      | 85       | 4                        | 1 370 000                | 4 200 000                 | 140 000                    | 425 000                     | 1 200                                | <b>29428 E</b>  |
| <b>150</b>               | 250      | 60       | 2.1                      | 870 000                  | 2 900 000                 | 89 000                     | 296 000                     | 1 400                                | <b>29330 E</b>  |
|                          | 300      | 90       | 4                        | 1 580 000                | 4 900 000                 | 162 000                    | 500 000                     | 1 100                                | <b>29430 E</b>  |
| <b>160</b>               | 270      | 67       | 3                        | 1 010 000                | 3 400 000                 | 103 000                    | 345 000                     | 1 300                                | <b>29332 E</b>  |
|                          | 320      | 95       | 5                        | 1 740 000                | 5 400 000                 | 178 000                    | 550 000                     | 1 100                                | <b>29432 E</b>  |
| <b>170</b>               | 280      | 67       | 3                        | 1 050 000                | 3 500 000                 | 107 000                    | 355 000                     | 1 200                                | <b>29334 E</b>  |
|                          | 340      | 103      | 5                        | 1 680 000                | 5 800 000                 | 171 000                    | 595 000                     | 1 000                                | <b>29434 E</b>  |
| <b>180</b>               | 300      | 73       | 3                        | 1 230 000                | 4 200 000                 | 125 000                    | 430 000                     | 1 100                                | <b>29336 E</b>  |
|                          | 360      | 109      | 5                        | 1 870 000                | 6 500 000                 | 190 000                    | 660 000                     | 900                                  | <b>29436 E</b>  |
| <b>190</b>               | 320      | 78       | 4                        | 1 370 000                | 4 700 000                 | 140 000                    | 480 000                     | 1 100                                | <b>29338 E</b>  |
|                          | 380      | 115      | 5                        | 2 100 000                | 7 450 000                 | 215 000                    | 760 000                     | 850                                  | <b>29438 E</b>  |
| <b>200</b>               | 280      | 48       | 2                        | 540 000                  | 2 310 000                 | 55 000                     | 236 000                     | 1 500                                | <b>29240</b>    |
|                          | 340      | 85       | 4                        | 1 570 000                | 5 450 000                 | 160 000                    | 555 000                     | 1 000                                | <b>29340 E</b>  |
|                          | 400      | 122      | 5                        | 2 290 000                | 8 150 000                 | 234 000                    | 835 000                     | 800                                  | <b>29440</b>    |

**Note** (1) For heavy load applications, a *d<sub>a</sub>* value should be chosen which is large enough to support the shaft washer rib.

| Dimensions (mm)      |                      |                      |                      |          |          | Spacer Sleeve Dimensions (mm) |                            | Abutment and Fillet Dimensions (mm)      |                           |                           |                           | Mass (kg) |
|----------------------|----------------------|----------------------|----------------------|----------|----------|-------------------------------|----------------------------|------------------------------------------|---------------------------|---------------------------|---------------------------|-----------|
| <i>d<sub>1</sub></i> | <i>D<sub>1</sub></i> | <i>B<sub>1</sub></i> | <i>B<sub>2</sub></i> | <i>C</i> | <i>A</i> | <i>d<sub>S1</sub></i> max.    | <i>d<sub>S2</sub></i> max. | <i>d<sub>a</sub></i> <sup>(1)</sup> min. | <i>D<sub>a</sub></i> max. | <i>D<sub>b</sub></i> min. | <i>r<sub>a</sub></i> max. | approx.   |
| 114.5                | 89                   | 27                   | 38                   | 20       | 38       | 67                            | 67                         | 90                                       | 108                       | 133                       | 1.5                       | 2.55      |
| 121.5                | 93                   | 29.5                 | 40.5                 | 22       | 42       | 72                            | 72                         | 100                                      | 115                       | 143                       | 2                         | 3.2       |
| 131.5                | 102                  | 31                   | 43                   | 24       | 44       | 78                            | 78                         | 105                                      | 125                       | 153                       | 2                         | 3.9       |
| 138                  | 107                  | 33.5                 | 46                   | 25       | 47       | 83                            | 83                         | 115                                      | 132                       | 163                       | 2                         | 4.65      |
| 148                  | 114.5                | 35                   | 48.5                 | 27       | 50       | 89                            | 89                         | 120                                      | 140                       | 173                       | 2                         | 5.55      |
| 134.5                | 112                  | 24.5                 | 35.5                 | 19       | 50       | 91                            | 91                         | 115                                      | 135                       | 153                       | 1.5                       | 2.7       |
| 156.5                | 124                  | 37                   | 51.5                 | 28       | 54       | 95                            | 95                         | 130                                      | 150                       | 183                       | 2                         | 6.55      |
| 139.5                | 118                  | 24.5                 | 35                   | 19       | 52       | 97                            | 97                         | 120                                      | 140                       | 158                       | 1.5                       | 2.83      |
| 165.5                | 129.5                | 39                   | 54.5                 | 29       | 56       | 100                           | 100                        | 135                                      | 157                       | 193                       | 2                         | 7.55      |
| 152                  | 128                  | 26.2                 | 38                   | 20.8     | 58       | 107                           | 107                        | 130                                      | 150                       | 173                       | 1.5                       | 3.6       |
| 185                  | 144                  | 43                   | 59.5                 | 33       | 62       | 111                           | 111                        | 150                                      | 175                       | 214                       | 2.5                       | 10.3      |
| 169.5                | 142.5                | 30.3                 | 43.5                 | 24       | 64       | 117                           | 117                        | 145                                      | 165                       | 193                       | 2                         | 5.25      |
| 200                  | 157                  | 47                   | 64.5                 | 36       | 69       | 121                           | 129                        | 165                                      | 190                       | 234                       | 2.5                       | 13.3      |
| 187.5                | 156.5                | 34                   | 48.5                 | 27       | 70       | 130                           | 130                        | 160                                      | 180                       | 214                       | 2                         | 7.3       |
| 215                  | 171                  | 50.5                 | 69.5                 | 38       | 74       | 132                           | 142                        | 180                                      | 205                       | 254                       | 3                         | 16.6      |
| 203.5                | 168.5                | 37                   | 53.5                 | 28       | 76       | 141                           | 143                        | 170                                      | 195                       | 229                       | 2                         | 8.95      |
| 235                  | 185                  | 54                   | 74.5                 | 42       | 81       | 143                           | 153                        | 195                                      | 225                       | 275                       | 3                         | 21.1      |
| 216.5                | 179                  | 38.5                 | 54                   | 30       | 82       | 148                           | 154                        | 185                                      | 205                       | 244                       | 2                         | 10.4      |
| 244.5                | 195.5                | 54                   | 74.5                 | 42       | 86       | 153                           | 162                        | 205                                      | 235                       | 285                       | 3                         | 22.2      |
| 224                  | 190                  | 38                   | 54.5                 | 29       | 87       | 158                           | 163                        | 195                                      | 215                       | 254                       | 2                         | 10.8      |
| 266                  | 209                  | 58                   | 81                   | 44       | 92       | 164                           | 175                        | 220                                      | 250                       | 306                       | 3                         | 27.3      |
| 243                  | 203                  | 42                   | 60                   | 33       | 92       | 169                           | 176                        | 210                                      | 235                       | 275                       | 2.5                       | 14.3      |
| 278                  | 224.5                | 60.5                 | 84.5                 | 46       | 99       | 175                           | 189                        | 230                                      | 265                       | 326                       | 4                         | 32.1      |
| 252                  | 214.5                | 42.2                 | 60.5                 | 32       | 96       | 178                           | 188                        | 220                                      | 245                       | 285                       | 2.5                       | 14.8      |
| 310                  | 243                  | 37                   | 99                   | 50       | 104      | —                             | —                          | 245                                      | 285                       | —                         | 4                         | 43.5      |
| 270                  | 227                  | 46                   | 65.5                 | 36       | 103      | 189                           | 195                        | 235                                      | 260                       | 306                       | 2.5                       | 19        |
| 330                  | 255                  | 39                   | 105                  | 52       | 110      | —                             | —                          | 260                                      | 300                       | —                         | 4                         | 52        |
| 288.5                | 244                  | 49                   | 69                   | 38       | 110      | 200                           | 211                        | 250                                      | 275                       | 326                       | 3                         | 23        |
| 345                  | 271                  | 41                   | 111                  | 55       | 117      | —                             | —                          | 275                                      | 320                       | —                         | 4                         | 60        |
| 266                  | 236                  | 15                   | 46                   | 24       | 108      | —                             | —                          | 235                                      | 255                       | —                         | 2                         | 8.55      |
| 306.5                | 257                  | 53.5                 | 75                   | 41       | 116      | 211                           | 224                        | 265                                      | 295                       | 346                       | 3                         | 28.5      |
| 365                  | 280                  | 43                   | 117                  | 59       | 122      | —                             | —                          | 290                                      | 335                       | —                         | 4                         | 69        |

# THRUST SPHERICAL ROLLER BEARINGS

Bore Diameter 220 – 420 mm



**Dynamic Equivalent Load**  
 $P = 1.2F_r + F_a$   
**Static Equivalent Load**  
 $P_0 = 2.8F_r + F_a$   
 However,  $F_r/F_a \leq 0.55$  must be satisfied.

| Boundary Dimensions<br>(mm) |          |          |                  | Basic Load Ratings          |                              |                               |                                | Limiting<br>Speeds<br>(min <sup>-1</sup> )<br>Oil | Bearing<br>Numbers |
|-----------------------------|----------|----------|------------------|-----------------------------|------------------------------|-------------------------------|--------------------------------|---------------------------------------------------|--------------------|
| <i>d</i>                    | <i>D</i> | <i>T</i> | <i>r</i><br>min. | (N)<br><i>C<sub>a</sub></i> | (N)<br><i>C<sub>0a</sub></i> | {kgf}<br><i>C<sub>a</sub></i> | {kgf}<br><i>C<sub>0a</sub></i> |                                                   |                    |
| <b>220</b>                  | 300      | 48       | 2                | 560 000                     | 2 500 000                    | 57 000                        | 255 000                        | 1 400                                             | <b>29244</b>       |
|                             | 360      | 85       | 4                | 1 340 000                   | 5 200 000                    | 137 000                       | 530 000                        | 950                                               | <b>29344</b>       |
|                             | 420      | 122      | 6                | 2 350 000                   | 8 650 000                    | 240 000                       | 880 000                        | 800                                               | <b>29444</b>       |
| <b>240</b>                  | 340      | 60       | 2.1              | 800 000                     | 3 450 000                    | 82 000                        | 350 000                        | 1 200                                             | <b>29248</b>       |
|                             | 380      | 85       | 4                | 1 360 000                   | 5 400 000                    | 139 000                       | 550 000                        | 950                                               | <b>29348</b>       |
|                             | 440      | 122      | 6                | 2 420 000                   | 9 100 000                    | 247 000                       | 930 000                        | 750                                               | <b>29448</b>       |
| <b>260</b>                  | 360      | 60       | 2.1              | 855 000                     | 3 850 000                    | 87 500                        | 395 000                        | 1 200                                             | <b>29252</b>       |
|                             | 420      | 95       | 5                | 1 700 000                   | 6 800 000                    | 173 000                       | 695 000                        | 800                                               | <b>29352</b>       |
|                             | 480      | 132      | 6                | 2 820 000                   | 10 700 000                   | 287 000                       | 1 090 000                      | 710                                               | <b>29452</b>       |
| <b>280</b>                  | 380      | 60       | 2.1              | 885 000                     | 4 100 000                    | 90 000                        | 420 000                        | 1 100                                             | <b>29256</b>       |
|                             | 440      | 95       | 5                | 1 830 000                   | 7 650 000                    | 187 000                       | 780 000                        | 800                                               | <b>29356</b>       |
|                             | 520      | 145      | 6                | 3 400 000                   | 13 100 000                   | 345 000                       | 1 330 000                      | 630                                               | <b>29456</b>       |
|                             | 520      | 145      | 6                | 3 950 000                   | 14 900 000                   | 400 000                       | 1 520 000                      | 630                                               | <b>29456 EM</b>    |
| <b>300</b>                  | 420      | 73       | 3                | 1 160 000                   | 5 150 000                    | 118 000                       | 525 000                        | 950                                               | <b>29260</b>       |
|                             | 480      | 109      | 5                | 2 190 000                   | 9 100 000                    | 224 000                       | 925 000                        | 710                                               | <b>29360</b>       |
|                             | 540      | 145      | 6                | 3 500 000                   | 13 700 000                   | 355 000                       | 1 390 000                      | 630                                               | <b>29460</b>       |
| <b>320</b>                  | 440      | 73       | 3                | 1 190 000                   | 5 450 000                    | 122 000                       | 555 000                        | 950                                               | <b>29264</b>       |
|                             | 500      | 109      | 5                | 2 230 000                   | 9 400 000                    | 227 000                       | 960 000                        | 670                                               | <b>29364</b>       |
|                             | 580      | 155      | 7.5              | 3 650 000                   | 14 600 000                   | 370 000                       | 1 490 000                      | 560                                               | <b>29464</b>       |
| <b>340</b>                  | 460      | 73       | 3                | 1 230 000                   | 5 750 000                    | 125 000                       | 590 000                        | 900                                               | <b>29268</b>       |
|                             | 540      | 122      | 5                | 2 640 000                   | 11 200 000                   | 269 000                       | 1 140 000                      | 630                                               | <b>29368</b>       |
|                             | 620      | 170      | 7.5              | 4 400 000                   | 17 400 000                   | 450 000                       | 1 780 000                      | 530                                               | <b>29468</b>       |
| <b>360</b>                  | 500      | 85       | 4                | 1 550 000                   | 7 300 000                    | 158 000                       | 745 000                        | 800                                               | <b>29272</b>       |
|                             | 560      | 122      | 5                | 2 670 000                   | 11 500 000                   | 272 000                       | 1 180 000                      | 600                                               | <b>29372</b>       |
|                             | 640      | 170      | 7.5              | 4 200 000                   | 17 200 000                   | 430 000                       | 1 750 000                      | 500                                               | <b>29472</b>       |
|                             | 640      | 170      | 7.5              | 5 450 000                   | 20 400 000                   | 555 000                       | 2 800 000                      | 500                                               | <b>29472 EM</b>    |
| <b>380</b>                  | 520      | 85       | 4                | 1 620 000                   | 7 800 000                    | 165 000                       | 795 000                        | 800                                               | <b>29276</b>       |
|                             | 600      | 132      | 6                | 3 300 000                   | 14 500 000                   | 335 000                       | 1 480 000                      | 560                                               | <b>29376</b>       |
|                             | 670      | 175      | 7.5              | 4 800 000                   | 19 500 000                   | 490 000                       | 1 990 000                      | 480                                               | <b>29476</b>       |
| <b>400</b>                  | 540      | 85       | 4                | 1 640 000                   | 8 000 000                    | 167 000                       | 815 000                        | 750                                               | <b>29280</b>       |
|                             | 620      | 132      | 6                | 3 250 000                   | 14 500 000                   | 330 000                       | 1 480 000                      | 530                                               | <b>29380</b>       |
|                             | 710      | 185      | 7.5              | 5 400 000                   | 22 100 000                   | 550 000                       | 2 250 000                      | 450                                               | <b>29480</b>       |
| <b>420</b>                  | 580      | 95       | 5                | 2 010 000                   | 9 800 000                    | 205 000                       | 1 000 000                      | 670                                               | <b>29284</b>       |
|                             | 650      | 140      | 6                | 3 500 000                   | 15 700 000                   | 355 000                       | 1 600 000                      | 500                                               | <b>29384</b>       |
|                             | 730      | 185      | 7.5              | 5 650 000                   | 23 500 000                   | 575 000                       | 2 400 000                      | 450                                               | <b>29484</b>       |

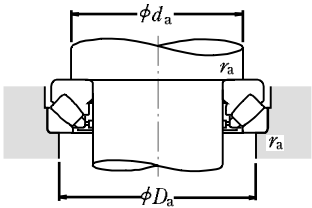
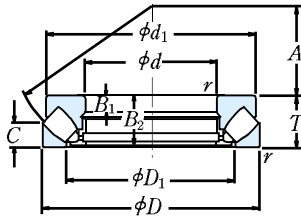
**Note** (1) For heavy load applications, a *d<sub>a</sub>* value should be chosen which is large enough to support the shaft washer rib.

| Dimensions<br>(mm)   |                      |                      |                      |          |          | Abutment and Fillet<br>Dimensions (mm)      |                              |                              | Mass<br>(kg) |
|----------------------|----------------------|----------------------|----------------------|----------|----------|---------------------------------------------|------------------------------|------------------------------|--------------|
| <i>d<sub>1</sub></i> | <i>D<sub>1</sub></i> | <i>B<sub>1</sub></i> | <i>B<sub>2</sub></i> | <i>C</i> | <i>A</i> | <i>d<sub>a</sub></i> <sup>(1)</sup><br>min. | <i>D<sub>a</sub></i><br>max. | <i>r<sub>a</sub></i><br>max. | approx.      |
| 285                  | 254                  | 15                   | 46                   | 24       | 117      | 260                                         | 275                          | 2                            | 9.2          |
| 335                  | 280                  | 29                   | 81                   | 41       | 125      | 285                                         | 315                          | 3                            | 33           |
| 385                  | 308                  | 43                   | 117                  | 58       | 132      | 310                                         | 355                          | 5                            | 74           |
| 325                  | 283                  | 19                   | 57                   | 30       | 130      | 285                                         | 305                          | 2                            | 16.5         |
| 355                  | 300                  | 29                   | 81                   | 41       | 135      | 300                                         | 330                          | 3                            | 35.5         |
| 405                  | 326                  | 43                   | 117                  | 59       | 142      | 330                                         | 375                          | 5                            | 79           |
| 345                  | 302                  | 19                   | 57                   | 30       | 139      | 305                                         | 325                          | 2                            | 18           |
| 390                  | 329                  | 32                   | 91                   | 45       | 148      | 330                                         | 365                          | 4                            | 48.5         |
| 445                  | 357                  | 48                   | 127                  | 64       | 154      | 360                                         | 405                          | 5                            | 105          |
| 365                  | 323                  | 19                   | 57                   | 30       | 150      | 325                                         | 345                          | 2                            | 19           |
| 410                  | 348                  | 32                   | 91                   | 46       | 158      | 350                                         | 390                          | 4                            | 52.5         |
| 480                  | 384                  | 52                   | 140                  | 68       | 166      | 390                                         | 440                          | 5                            | 132          |
| 480                  | 380                  | 52                   | 140                  | 70       | 166      | 410                                         | 445                          | 5                            | 134          |
| 400                  | 353                  | 21                   | 69                   | 38       | 162      | 355                                         | 380                          | 2.5                          | 30           |
| 450                  | 379                  | 37                   | 105                  | 50       | 168      | 380                                         | 420                          | 4                            | 74           |
| 500                  | 402                  | 52                   | 140                  | 70       | 175      | 410                                         | 460                          | 5                            | 140          |
| 420                  | 372                  | 21                   | 69                   | 38       | 172      | 375                                         | 400                          | 2.5                          | 32.5         |
| 470                  | 399                  | 37                   | 105                  | 53       | 180      | 400                                         | 440                          | 4                            | 77           |
| 555                  | 436                  | 55                   | 149                  | 75       | 191      | 435                                         | 495                          | 6                            | 175          |
| 440                  | 395                  | 21                   | 69                   | 37       | 183      | 395                                         | 420                          | 2.5                          | 33.5         |
| 510                  | 428                  | 41                   | 117                  | 59       | 192      | 430                                         | 470                          | 4                            | 103          |
| 590                  | 462                  | 61                   | 164                  | 82       | 201      | 465                                         | 530                          | 6                            | 218          |
| 480                  | 423                  | 25                   | 81                   | 44       | 194      | 420                                         | 455                          | 3                            | 51           |
| 525                  | 448                  | 41                   | 117                  | 59       | 202      | 450                                         | 495                          | 4                            | 107          |
| 610                  | 480                  | 61                   | 164                  | 82       | 210      | 485                                         | 550                          | 6                            | 228          |
| 580                  | 474                  | 61                   | 164                  | 83       | 210      | 495                                         | 550                          | 6                            | 220          |
| 496                  | 441                  | 27                   | 81                   | 42       | 202      | 440                                         | 475                          | 3                            | 52           |
| 568                  | 477                  | 44                   | 127                  | 63       | 216      | 480                                         | 525                          | 5                            | 140          |
| 640                  | 504                  | 63                   | 168                  | 85       | 230      | 510                                         | 575                          | 6                            | 254          |
| 517                  | 460                  | 27                   | 81                   | 42       | 212      | 460                                         | 490                          | 3                            | 55           |
| 590                  | 494                  | 44                   | 127                  | 64       | 225      | 500                                         | 550                          | 5                            | 150          |
| 680                  | 536                  | 67                   | 178                  | 89       | 236      | 540                                         | 610                          | 6                            | 306          |
| 553                  | 489                  | 30                   | 91                   | 46       | 225      | 490                                         | 525                          | 4                            | 72           |
| 620                  | 520                  | 48                   | 135                  | 68       | 235      | 525                                         | 575                          | 5                            | 170          |
| 700                  | 556                  | 67                   | 178                  | 89       | 244      | 560                                         | 630                          | 6                            | 323          |

# THRUST SPHERICAL ROLLER BEARINGS

Bore Diameter 440 – 500 mm

NSK



Dynamic Equivalent Load  
 $P = 1.2F_r + F_a$   
 Static Equivalent Load  
 $P_0 = 2.8F_r + F_a$   
 However,  $F_r/F_a \leq 0.55$  must be satisfied.

| Boundary Dimensions (mm) |          |          |                          | Basic Load Ratings          |                              |                               |                                | Limiting Speeds (min <sup>-1</sup> ) Oil | Bearing Numbers |
|--------------------------|----------|----------|--------------------------|-----------------------------|------------------------------|-------------------------------|--------------------------------|------------------------------------------|-----------------|
| <i>d</i>                 | <i>D</i> | <i>T</i> | <i>r</i> <sub>min.</sub> | (N)<br><i>C<sub>a</sub></i> | (N)<br><i>C<sub>0a</sub></i> | (kgf)<br><i>C<sub>a</sub></i> | (kgf)<br><i>C<sub>0a</sub></i> |                                          |                 |
| <b>440</b>               | 600      | 95       | 5                        | 2 030 000                   | 10 100 000                   | 207 000                       | 1 030 000                      | 670                                      | <b>29288</b>    |
|                          | 680      | 145      | 6                        | 3 750 000                   | 16 700 000                   | 380 000                       | 1 710 000                      | 480                                      | <b>29388</b>    |
|                          | 780      | 206      | 9.5                      | 6 550 000                   | 27 200 000                   | 665 000                       | 2 770 000                      | 400                                      | <b>29488</b>    |
|                          | 780      | 206      | 9.5                      | 8 000 000                   | 31 500 000                   | 815 000                       | 3 250 000                      | 400                                      | <b>29488 EM</b> |
| <b>460</b>               | 620      | 95       | 5                        | 2 060 000                   | 10 300 000                   | 210 000                       | 1 050 000                      | 670                                      | <b>29292</b>    |
|                          | 710      | 150      | 6                        | 4 100 000                   | 18 400 000                   | 420 000                       | 1 880 000                      | 450                                      | <b>29392</b>    |
|                          | 800      | 206      | 9.5                      | 6 750 000                   | 28 600 000                   | 690 000                       | 2 920 000                      | 380                                      | <b>29492</b>    |
| <b>480</b>               | 650      | 103      | 5                        | 2 370 000                   | 12 100 000                   | 241 000                       | 1 240 000                      | 600                                      | <b>29296</b>    |
|                          | 730      | 150      | 6                        | 4 150 000                   | 19 000 000                   | 425 000                       | 1 940 000                      | 450                                      | <b>29396</b>    |
|                          | 850      | 224      | 9.5                      | 7 200 000                   | 31 000 000                   | 730 000                       | 3 150 000                      | 360                                      | <b>29496</b>    |
| <b>500</b>               | 670      | 103      | 5                        | 2 390 000                   | 12 400 000                   | 244 000                       | 1 270 000                      | 600                                      | <b>292/500</b>  |
|                          | 750      | 150      | 6                        | 4 350 000                   | 20 400 000                   | 445 000                       | 2 080 000                      | 450                                      | <b>293/500</b>  |
|                          | 870      | 224      | 9.5                      | 7 850 000                   | 33 000 000                   | 800 000                       | 3 350 000                      | 340                                      | <b>294/500</b>  |

**Note** (1) For heavy load applications, a *d<sub>a</sub>* value should be chosen which is large enough to support the shaft washer rib.

| Dimensions (mm)       |                       |                       |                       |          |          | Abutment and Fillet Dimensions (mm)                  |                                       |                                       | Mass (kg) |
|-----------------------|-----------------------|-----------------------|-----------------------|----------|----------|------------------------------------------------------|---------------------------------------|---------------------------------------|-----------|
| <i>d</i> <sub>1</sub> | <i>D</i> <sub>1</sub> | <i>B</i> <sub>1</sub> | <i>B</i> <sub>2</sub> | <i>C</i> | <i>A</i> | <i>d</i> <sub>a</sub> <sup>(1)</sup> <sub>min.</sub> | <i>D</i> <sub>a</sub> <sub>max.</sub> | <i>r</i> <sub>a</sub> <sub>max.</sub> | approx.   |
| 575                   | 508                   | 30                    | 91                    | 49       | 235      | 510                                                  | 545                                   | 4                                     | 77        |
| 645                   | 548                   | 49                    | 140                   | 70       | 245      | 550                                                  | 600                                   | 5                                     | 190       |
| 745                   | 588                   | 74                    | 199                   | 100      | 260      | 595                                                  | 670                                   | 8                                     | 407       |
| 710                   | 577                   | 74                    | 199                   | 101      | 257      | 605                                                  | 675                                   | 8                                     | 402       |
| 592                   | 530                   | 30                    | 91                    | 46       | 245      | 530                                                  | 570                                   | 4                                     | 80        |
| 666                   | 567                   | 51                    | 144                   | 72       | 257      | 575                                                  | 630                                   | 5                                     | 210       |
| 765                   | 608                   | 74                    | 199                   | 100      | 272      | 615                                                  | 690                                   | 8                                     | 420       |
| 624                   | 556                   | 33                    | 99                    | 55       | 259      | 555                                                  | 595                                   | 4                                     | 97        |
| 690                   | 590                   | 51                    | 144                   | 72       | 270      | 595                                                  | 650                                   | 5                                     | 215       |
| 810                   | 638                   | 81                    | 216                   | 108      | 280      | 645                                                  | 730                                   | 8                                     | 545       |
| 645                   | 574                   | 33                    | 99                    | 55       | 268      | 575                                                  | 615                                   | 4                                     | 100       |
| 715                   | 611                   | 51                    | 144                   | 74       | 280      | 615                                                  | 670                                   | 5                                     | 220       |
| 830                   | 661                   | 81                    | 216                   | 107      | 290      | 670                                                  | 750                                   | 8                                     | 560       |