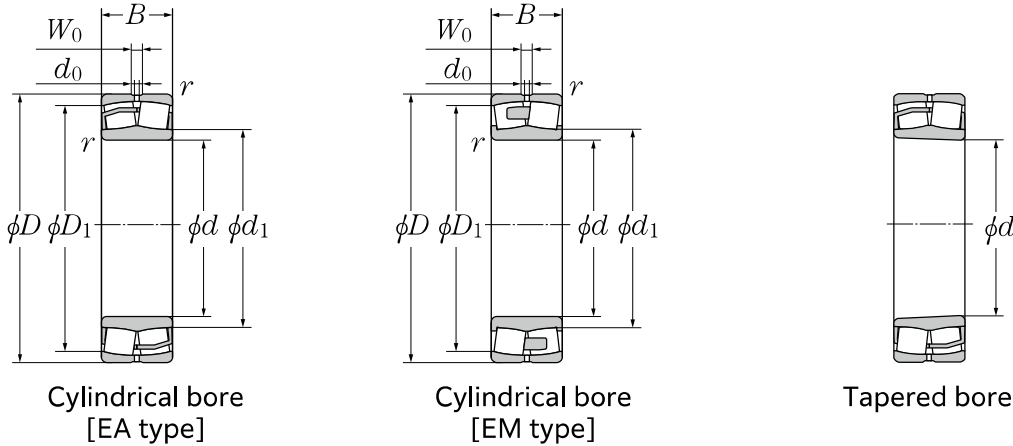
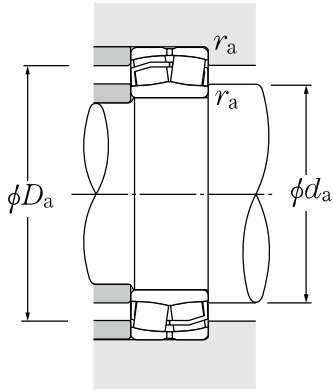




d 130 ~ 160mm

| Boundary dimensions |     |     |                                  |                |                | Basic load rating |                 | Fatigue load limit | Allowable speed    |                 | Bearing numbers <sup>1)</sup> |                            |
|---------------------|-----|-----|----------------------------------|----------------|----------------|-------------------|-----------------|--------------------|--------------------|-----------------|-------------------------------|----------------------------|
| mm                  |     |     |                                  |                |                | dynamic           | static          | kN                 | min <sup>-1</sup>  |                 |                               |                            |
| d                   | D   | B   | r <sub>s min</sub> <sup>3)</sup> | W <sub>0</sub> | d <sub>0</sub> | C <sub>r</sub>    | C <sub>0r</sub> | C <sub>u</sub>     | Grease lubrication | Oil lubrication | Cylindrical bore              | Tapered bore <sup>2)</sup> |
| 130                 | 200 | 69  | 2                                | 9              | 4              | 682               | 936             | 42.2               | 1 900              | 2 400           | *24026EMD1                    | *24026EMK30D1              |
|                     | 210 | 64  | 2                                | 10             | 4.5            | 710               | 906             | 47.1               | 1 900              | 2 400           | *23126EAD1                    | *23126EAKD1                |
|                     | 210 | 64  | 2                                | 10             | 4.5            | 710               | 906             | 47.1               | 1 900              | 2 400           | *23126EMD1                    | *23126EMKD1                |
|                     | 210 | 80  | 2                                | 10             | 4.5            | 803               | 1 080           | 45.0               | 1 800              | 2 400           | *24126EMD1                    | *24126EMK30D1              |
|                     | 230 | 64  | 3                                | 13             | 6              | 808               | 898             | 56.6               | 2 200              | 2 800           | *22226EAD1                    | *22226EAKD1                |
|                     | 230 | 64  | 3                                | 13             | 6              | 808               | 898             | 56.6               | 2 200              | 2 800           | *22226EMD1                    | *22226EMKD1                |
|                     | 230 | 80  | 3                                | 12             | 5              | 958               | 1 130           | 55.4               | 1 700              | 2 300           | *23226EMD1                    | *23226EMKD1                |
|                     | 280 | 93  | 4                                | 19             | 9              | 1 330             | 1 400           | 77.8               | 1 600              | 2 000           | *22326EAD1                    | *22326EAKD1                |
| 140                 | 280 | 93  | 4                                | 19             | 9              | 1 330             | 1 400           | 77.8               | 1 600              | 2 000           | *22326EMD1                    | *22326EMKD1                |
|                     | 210 | 53  | 2                                | 9              | 4              | 597               | 783             | 47.5               | 2 100              | 2 700           | *23028EAD1                    | *23028EAKD1                |
|                     | 210 | 53  | 2                                | 9              | 4              | 597               | 783             | 47.5               | 2 100              | 2 700           | *23028EMD1                    | *23028EMKD1                |
|                     | 210 | 69  | 2                                | 9              | 4              | 709               | 990             | 46.0               | 1 800              | 2 200           | *24028EMD1                    | *24028EMK30D1              |
|                     | 225 | 68  | 2.1                              | 11             | 5              | 802               | 1 030           | 53.1               | 1 800              | 2 200           | *23128EAD1                    | *23128EAKD1                |
|                     | 225 | 68  | 2.1                              | 11             | 5              | 802               | 1 030           | 53.1               | 1 800              | 2 200           | *23128EMD1                    | *23128EMKD1                |
|                     | 225 | 85  | 2.1                              | 10             | 4.5            | 951               | 1 280           | 53.3               | 1 700              | 2 200           | *24128EMD1                    | *24128EMK30D1              |
|                     | 250 | 68  | 3                                | 14             | 7              | 912               | 1 010           | 65.8               | 2 000              | 2 500           | *22228EAD1                    | *22228EAKD1                |
|                     | 250 | 68  | 3                                | 14             | 7              | 912               | 1 010           | 65.8               | 2 000              | 2 500           | *22228EMD1                    | *22228EMKD1                |
|                     | 250 | 88  | 3                                | 13             | 6              | 1 140             | 1 370           | 64.2               | 1 600              | 2 100           | *23228EMD1                    | *23228EMKD1                |
| 150                 | 300 | 102 | 4                                | 19             | 9              | 1 540             | 1 720           | 88.8               | 1 500              | 1 900           | *22328EAD1                    | *22328EAKD1                |
|                     | 300 | 102 | 4                                | 19             | 9              | 1 540             | 1 720           | 88.8               | 1 500              | 1 900           | *22328EMD1                    | *22328EMKD1                |
|                     | 225 | 56  | 2.1                              | 10             | 4.5            | 660               | 893             | 52.9               | 2 000              | 2 500           | *23030EAD1                    | *23030EAKD1                |
|                     | 225 | 56  | 2.1                              | 10             | 4.5            | 660               | 893             | 52.9               | 2 000              | 2 500           | *23030EMD1                    | *23030EMKD1                |
|                     | 225 | 75  | 2.1                              | 10             | 4.5            | 789               | 1 140           | 51.2               | 1 700              | 2 100           | *24030EMD1                    | *24030EMK30D1              |
|                     | 250 | 80  | 2.1                              | 13             | 6              | 1 060             | 1 350           | 65.1               | 1 600              | 2 000           | *23130EAD1                    | *23130EAKD1                |
|                     | 250 | 80  | 2.1                              | 13             | 6              | 1 060             | 1 350           | 65.1               | 1 600              | 2 000           | *23130EMD1                    | *23130EMKD1                |
|                     | 250 | 100 | 2.1                              | 12             | 6              | 1 180             | 1 590           | 62.8               | 1 600              | 2 000           | *24130EMD1                    | *24130EMK30D1              |
| 160                 | 270 | 73  | 3                                | 15             | 7              | 1 080             | 1 220           | 74.4               | 1 800              | 2 300           | *22230EAD1                    | *22230EAKD1                |
|                     | 270 | 73  | 3                                | 15             | 7              | 1 080             | 1 220           | 74.4               | 1 800              | 2 300           | *22230EMD1                    | *22230EMKD1                |
|                     | 270 | 96  | 3                                | 14             | 6              | 1 340             | 1 620           | 74.0               | 1 500              | 1 900           | *23230EMD1                    | *23230EMKD1                |
|                     | 320 | 108 | 4                                | 20             | 9              | 1 740             | 1 890           | 98.9               | 1 400              | 1 700           | *22330EMD1                    | *22330EMKD1                |
|                     | 220 | 45  | 2                                | 9              | 4              | 455               | 683             | 45.6               | 1 900              | 2 400           | *23932EMD1                    | *23932EMKD1                |
|                     | 240 | 60  | 2.1                              | 11             | 5              | 748               | 1 000           | 59.1               | 1 800              | 2 300           | *23032EAD1                    | *23032EAKD1                |
| 160                 | 240 | 60  | 2.1                              | 11             | 5              | 748               | 1 000           | 59.1               | 1 800              | 2 300           | *23032EMD1                    | *23032EMKD1                |
|                     | 240 | 80  | 2.1                              | 10             | 5              | 901               | 1 290           | 56.8               | 1 600              | 2 000           | *24032EMD1                    | *24032EMK30D1              |
|                     | 270 | 86  | 2.1                              | 14             | 6              | 1 220             | 1 580           | 73.6               | 1 500              | 1 900           | *23132EAD1                    | *23132EAKD1                |
|                     | 270 | 86  | 2.1                              | 14             | 6              | 1 220             | 1 580           | 73.6               | 1 500              | 1 900           | *23132EMD1                    | *23132EMKD1                |

1) Bearing part numbers with \* are ULTAGE Series and have outer ring oil holes and oil grooves as standard. 2) Bearings appended with "K" have a tapered bore ratio of 1:12; bearings appended with "K30" have a tapered bore ratio of 1:30. 3) Smallest allowable dimension for chamfer dimension r.



Dynamic equivalent radial load

$P_r = X F_r + Y F_a$

| $\frac{F_a}{F_r} \leq e$ |                | $\frac{F_a}{F_r} > e$ |                |
|--------------------------|----------------|-----------------------|----------------|
| X                        | Y              | X                     | Y              |
| 1                        | Y <sub>1</sub> | 0.67                  | Y <sub>2</sub> |

Static equivalent radial load

$P_{0r} = F_r + Y_0 F_a$

For values of e, Y<sub>1</sub>, Y<sub>2</sub> and Y<sub>0</sub> see the table below.

| Installation-related dimensions |                    |                    |                |                     | Constant | Axial load factors |                |                |  | Mass (approx.) kg |              |
|---------------------------------|--------------------|--------------------|----------------|---------------------|----------|--------------------|----------------|----------------|--|-------------------|--------------|
| mm                              |                    |                    |                |                     |          |                    |                |                |  | Cylindrical bore  | Tapered bore |
| d <sub>1</sub>                  | d <sub>a min</sub> | D <sub>a max</sub> | D <sub>1</sub> | r <sub>as max</sub> | e        | Y <sub>1</sub>     | Y <sub>2</sub> | Y <sub>0</sub> |  |                   |              |
| 143                             | 139                | 191                | 178            | 2                   | 0.31     | 2.20               | 3.27           | 2.15           |  | 7.82              | 7.71         |
| 148                             | 141                | 199                | 189            | 2                   | 0.27     | 2.51               | 3.74           | 2.45           |  | 8.45              | 8.19         |
| 148                             | 141                | 199                | 189            | 2                   | 0.27     | 2.51               | 3.74           | 2.45           |  | 8.51              | 8.25         |
| 146                             | 141                | 199                | 183            | 2                   | 0.34     | 1.96               | 2.92           | 1.92           |  | 10.7              | 10.5         |
| 151                             | 144                | 216                | 206            | 3                   | 0.25     | 2.69               | 4.00           | 2.63           |  | 11                | 10.7         |
| 151                             | 144                | 216                | 206            | 3                   | 0.25     | 2.69               | 4.00           | 2.63           |  | 11.1              | 10.9         |
| 150                             | 144                | 216                | 203            | 3                   | 0.32     | 2.12               | 3.15           | 2.07           |  | 13.8              | 13.4         |
| 164                             | 147                | 263                | 243            | 4                   | 0.33     | 2.06               | 3.06           | 2.01           |  | 27.2              | 26.6         |
| 164                             | 147                | 263                | 243            | 4                   | 0.33     | 2.06               | 3.06           | 2.01           |  | 28                | 27.5         |
| 155                             | 149                | 201                | 193            | 2                   | 0.22     | 3.14               | 4.67           | 3.07           |  | 6.32              | 6.13         |
| 155                             | 149                | 201                | 193            | 2                   | 0.22     | 3.14               | 4.67           | 3.07           |  | 6.37              | 6.18         |
| 153                             | 149                | 201                | 188            | 2                   | 0.28     | 2.37               | 3.53           | 2.32           |  | 8.27              | 8.15         |
| 159                             | 152                | 213                | 203            | 2.1                 | 0.26     | 2.55               | 3.80           | 2.50           |  | 10.3              | 9.94         |
| 159                             | 152                | 213                | 203            | 2.1                 | 0.26     | 2.55               | 3.80           | 2.50           |  | 10.3              | 10           |
| 156                             | 152                | 213                | 198            | 2.1                 | 0.34     | 1.98               | 2.94           | 1.93           |  | 12.9              | 12.8         |
| 163                             | 154                | 236                | 224            | 3                   | 0.25     | 2.74               | 4.08           | 2.68           |  | 13.9              | 13.6         |
| 163                             | 154                | 236                | 224            | 3                   | 0.25     | 2.74               | 4.08           | 2.68           |  | 14.2              | 13.9         |
| 162                             | 154                | 236                | 220            | 3                   | 0.33     | 2.06               | 3.06           | 2.01           |  | 18.2              | 17.7         |
| 181                             | 157                | 283                | 261            | 4                   | 0.33     | 2.03               | 3.02           | 1.98           |  | 34.4              | 33.7         |
| 181                             | 157                | 283                | 261            | 4                   | 0.33     | 2.03               | 3.02           | 1.98           |  | 35.4              | 34.7         |
| 167                             | 161                | 214                | 207            | 2.1                 | 0.21     | 3.20               | 4.77           | 3.13           |  | 7.68              | 7.45         |
| 167                             | 161                | 214                | 207            | 2.1                 | 0.21     | 3.20               | 4.77           | 3.13           |  | 7.73              | 7.5          |
| 165                             | 161                | 214                | 202            | 2.1                 | 0.29     | 2.32               | 3.45           | 2.26           |  | 10.4              | 10.3         |
| 171                             | 162                | 238                | 223            | 2.1                 | 0.29     | 2.35               | 3.50           | 2.30           |  | 15.7              | 15.2         |
| 171                             | 162                | 238                | 223            | 2.1                 | 0.29     | 2.35               | 3.50           | 2.30           |  | 15.8              | 15.3         |
| 168                             | 162                | 238                | 216            | 2.1                 | 0.36     | 1.85               | 2.76           | 1.81           |  | 19.7              | 19.4         |
| 177                             | 164                | 256                | 242            | 3                   | 0.25     | 2.74               | 4.08           | 2.68           |  | 17.6              | 17.3         |
| 177                             | 164                | 256                | 242            | 3                   | 0.25     | 2.74               | 4.08           | 2.68           |  | 18                | 17.7         |
| 174                             | 164                | 256                | 237            | 3                   | 0.33     | 2.03               | 3.02           | 1.98           |  | 23.6              | 22.9         |
| 188                             | 167                | 303                | 279            | 4                   | 0.34     | 2.00               | 2.98           | 1.96           |  | 42.2              | 41.3         |
| 175                             | 169                | 211                | 205            | 2                   | 0.17     | 3.90               | 5.81           | 3.81           |  | 5.09              | 4.94         |
| 177                             | 171                | 229                | 221            | 2.1                 | 0.21     | 3.20               | 4.77           | 3.13           |  | 9.32              | 9.03         |
| 177                             | 171                | 229                | 221            | 2.1                 | 0.21     | 3.20               | 4.77           | 3.13           |  | 9.37              | 9.09         |
| 175                             | 171                | 229                | 215            | 2.1                 | 0.29     | 2.32               | 3.45           | 2.26           |  | 12.6              | 12.4         |
| 185                             | 172                | 258                | 240            | 2.1                 | 0.29     | 2.35               | 3.50           | 2.30           |  | 20.1              | 19.5         |
| 185                             | 172                | 258                | 240            | 2.1                 | 0.29     | 2.35               | 3.50           | 2.30           |  | 20.2              | 19.6         |