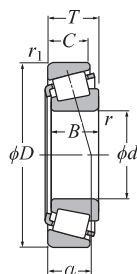


# Tapered Roller Bearings

Metric series

NTN



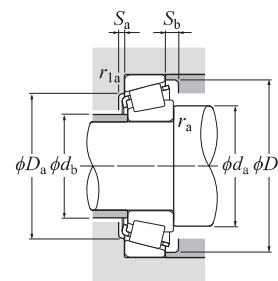
d 30–45 mm

| d  | Boundary dimensions |       |      |      |                                  |                                   | Basic load rating |                 | Fatigue load limit<br>kN<br>C <sub>u</sub> | Allowable speed<br>min <sup>-1</sup> |                 | Bearing number <sup>2)</sup> |
|----|---------------------|-------|------|------|----------------------------------|-----------------------------------|-------------------|-----------------|--------------------------------------------|--------------------------------------|-----------------|------------------------------|
|    | mm                  |       |      |      |                                  |                                   | dynamic           | static          |                                            | Grease lubrication                   | Oil lubrication |                              |
|    | D                   | T     | B    | C    | r <sub>s min</sub> <sup>1)</sup> | r <sub>1s min</sub> <sup>1)</sup> | C <sub>r</sub>    | C <sub>0r</sub> |                                            |                                      |                 |                              |
| 30 | 72                  | 20.75 | 19   | 15   | 1.5                              | 1.5                               | 65.0              | 58.5            | —                                          | 5 500                                | 7 300           | 4T-30306CA                   |
|    | 72                  | 20.75 | 19   | 14   | 1.5                              | 1.5                               | 53.5              | 51.5            | —                                          | 5 000                                | 6 700           | 4T-30306D                    |
|    | 72                  | 28.75 | 27   | 23   | 1.5                              | 1.5                               | 89.5              | 90.0            | —                                          | 5 700                                | 7 600           | 4T-32306                     |
|    | 72                  | 28.75 | 27   | 23   | 1.5                              | 1.5                               | 88.0              | 94.0            | —                                          | 5 500                                | 7 300           | 4T-32306C                    |
|    | 72                  | 28.75 | 27   | 23   | 1.5                              | 1.5                               | 77.5              | 88.5            | —                                          | 5 500                                | 7 300           | 4T-32306CR                   |
| 32 | 58                  | 17    | 17   | 13   | 1                                | 1                                 | 41.0              | 46.5            | —                                          | 6 600                                | 8 700           | 4T-320/32X                   |
|    | 65                  | 26    | 26   | 20.5 | 1                                | 1                                 | 78.5              | 85.0            | —                                          | 6 000                                | 8 000           | 4T-332/32                    |
|    | 75                  | 29.75 | 28   | 23   | 1.5                              | 1.5                               | 93.5              | 102             | —                                          | 5 200                                | 6 900           | 4T-323/32C                   |
| 35 | 55                  | 14    | 14   | 11.5 | 0.6                              | 0.6                               | 30.5              | 37.5            | 4.60                                       | 6 800                                | 9 000           | 32907XU                      |
|    | 62                  | 18    | 18   | 14   | 1                                | 1                                 | 46.0              | 52.5            | —                                          | 6 100                                | 8 100           | 4T-32007X                    |
|    | 62                  | 21    | 21   | 17   | 1                                | 1                                 | 56.0              | 66.5            | —                                          | 6 100                                | 8 100           | 4T-33007                     |
|    | 72                  | 18.25 | 17   | 15   | 1.5                              | 1.5                               | 61.5              | 61.5            | —                                          | 5 500                                | 7 400           | 4T-30207                     |
|    | 72                  | 24.25 | 23   | 19   | 1.5                              | 1.5                               | 80.5              | 87.0            | —                                          | 5 500                                | 7 400           | 4T-32207                     |
|    | 72                  | 24.25 | 23   | 19   | 1.5                              | 1.5                               | 75.5              | 85.5            | —                                          | 5 300                                | 7 100           | 4T-32207C                    |
|    | 72                  | 24.25 | 23   | 18   | 1.5                              | 1.5                               | 68.5              | 78.5            | —                                          | 5 300                                | 7 100           | 4T-32207CR                   |
|    | 72                  | 28    | 28   | 22   | 1.5                              | 1.5                               | 97.0              | 109             | —                                          | 5 500                                | 7 400           | 4T-33207                     |
|    | 80                  | 22.75 | 21   | 18   | 2                                | 1.5                               | 83.0              | 77.0            | —                                          | 5 000                                | 6 600           | 4T-30307                     |
|    | 80                  | 22.75 | 21   | 17   | 2                                | 1.5                               | 73.5              | 68.5            | —                                          | 4 800                                | 6 400           | 4T-30307C                    |
|    | 80                  | 22.75 | 21   | 15   | 2                                | 1.5                               | 70.5              | 70.0            | —                                          | 4 400                                | 5 800           | 4T-30307D                    |
|    | 80                  | 32.75 | 31   | 25   | 2                                | 1.5                               | 112               | 115             | —                                          | 5 000                                | 6 600           | 4T-32307                     |
| 40 | 80                  | 32.75 | 31   | 25   | 2                                | 1.5                               | 103               | 117             | —                                          | 4 800                                | 6 400           | 4T-32307C                    |
|    | 62                  | 15    | 15   | 12   | 0.6                              | 0.6                               | 36.0              | 48.0            | 5.85                                       | 5 900                                | 7 800           | 32908XU                      |
|    | 68                  | 19    | 19   | 14.5 | 1                                | 1                                 | 55.5              | 65.5            | —                                          | 5 300                                | 7 100           | 4T-32008X                    |
|    | 68                  | 22    | 22   | 18   | 1                                | 1                                 | 66.0              | 82.5            | —                                          | 5 300                                | 7 100           | 4T-33008                     |
|    | 75                  | 26    | 26   | 20.5 | 1.5                              | 1.5                               | 88.0              | 103             | —                                          | 5 200                                | 6 900           | 4T-33108                     |
|    | 80                  | 19.75 | 18   | 16   | 1.5                              | 1.5                               | 68.0              | 67.0            | —                                          | 4 900                                | 6 600           | 4T-30208                     |
|    | 80                  | 24.75 | 23   | 19   | 1.5                              | 1.5                               | 88.0              | 93.5            | —                                          | 4 900                                | 6 600           | 4T-32208                     |
|    | 80                  | 32    | 32   | 25   | 1.5                              | 1.5                               | 115               | 132             | —                                          | 4 900                                | 6 600           | 4T-33208                     |
|    | 85                  | 33    | 32.5 | 28   | 2.5                              | 2                                 | 131               | 144             | —                                          | 4 600                                | 6 200           | 4T-T2EE040                   |
|    | 90                  | 25.25 | 23   | 20   | 2                                | 1.5                               | 101               | 102             | —                                          | 4 400                                | 5 900           | 4T-30308                     |
|    | 90                  | 25.25 | 23   | 19   | 2                                | 1.5                               | 92.0              | 87.0            | —                                          | 4 200                                | 5 600           | 4T-30308C                    |
|    | 90                  | 25.25 | 23   | 17   | 2                                | 1.5                               | 85.5              | 85.5            | —                                          | 3 900                                | 5 200           | 4T-30308D                    |
| 45 | 90                  | 35.25 | 33   | 27   | 2                                | 1.5                               | 136               | 150             | 18.3                                       | 4 400                                | 5 900           | 32308U                       |
|    | 90                  | 35.25 | 33   | 27   | 2                                | 1.5                               | 122               | 140             | —                                          | 4 200                                | 5 600           | 4T-32308C                    |
| 45 | 68                  | 15    | 15   | 12   | 0.6                              | 0.6                               | 37.5              | 51.5            | 6,3                                        | 5 300                                | 7 000           | 32909XU                      |

1) Smallest allowable dimension for chamfer dimension  $r$  or  $r_1$ .  
2) Bearings with a ○ mark do not incorporate the subunit dimensions.

# Tapered Roller Bearings

NTN



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                        | 0 | 0.4                   | Y <sub>2</sub> |

Static equivalent radial load

$$P_{0r} = 0.5 F_r + Y_0 F_a$$

When  $P_{0r} < F_r$  use  $P_{0r} = F_r$ .

For values of  $e$ ,  $Y_2$

and  $Y_0$  see the table below.

| ISO<br>Dimension<br>series | Installation-related dimensions |               |               |               |               |               |                  |                   |     |      | Load<br>center<br>mm | Constant | Axial load<br>factors |       | Mass<br>kg<br>(approx.) |       |       |
|----------------------------|---------------------------------|---------------|---------------|---------------|---------------|---------------|------------------|-------------------|-----|------|----------------------|----------|-----------------------|-------|-------------------------|-------|-------|
|                            | mm                              |               |               |               |               |               |                  |                   |     |      |                      |          | $a$                   | $e$   |                         | $Y_2$ | $Y_0$ |
|                            | $d_a$<br>Min.                   | $d_b$<br>Max. | $D_a$<br>Max. | $D_b$<br>Min. | $S_a$<br>Min. | $S_b$<br>Min. | $r_{as}$<br>Max. | $r_{1as}$<br>Max. |     |      |                      |          |                       |       |                         |       |       |
| 7FB                        | 38.5                            | 39.5          | 63.5          | 58            | 67            | 3             | 5.5              | 1.5               | 1.5 | 17.5 | 0.47                 | 1.27     | 0.70                  | 0.399 |                         |       |       |
|                            | 38.5                            | 39.5          | 63.5          | 53.5          | 68            | 3             | 6.5              | 1.5               | 1.5 | 23.5 | 0.83                 | 0.73     | 0.40                  | 0.394 |                         |       |       |
|                            | 38.5                            | 39            | 63.5          | 57.5          | 66.5          | 3             | 5.5              | 1.5               | 1.5 | 18.5 | 0.31                 | 1.90     | 1.05                  | 0.577 |                         |       |       |
|                            | 38.5                            | 38            | 63.5          | 52            | 69            | 2             | 5.5              | 1.5               | 1.5 | 23   | 0.55                 | 1.10     | 0.60                  | 0.591 |                         |       |       |
| 5FD                        | 38.5                            | 38            | 63.5          | 49.5          | 67.5          | 2             | 5.5              | 1.5               | 1.5 | 23   | 0.61                 | 0.99     | 0.54                  | 0.594 |                         |       |       |
|                            |                                 |               |               |               |               |               |                  |                   |     |      |                      |          |                       |       |                         |       |       |
|                            | 4CC                             | 37.5          | 37.5          | 52.5          | 47.5          | 55.5          | 3                | 4                 | 1   | 1    | 14.5                 | 0.45     | 1.32                  | 0.73  | 0.188                   |       |       |
|                            | 2DE                             | 37.5          | 38            | 59.5          | 53            | 62            | 5                | 5.5               | 1   | 1    | 17                   | 0.35     | 1.73                  | 0.95  | 0.394                   |       |       |
| 5FD                        | 40.5                            | 40            | 66.5          | 55            | 71.5          | 3             | 6.5              | 1.5               | 1.5 | 23   | 0.55                 | 1.10     | 0.60                  | 0.652 |                         |       |       |
|                            |                                 |               |               |               |               |               |                  |                   |     |      |                      |          |                       |       |                         |       |       |
| 2BD                        | 39.5                            | 40            | 50.5          | 48            | 52.5          | 2.5           | 2.5              | 0.6               | 0.6 | 10.5 | 0.29                 | 2.06     | 1.13                  | 0.121 |                         |       |       |
| 4CC                        | 40.5                            | 40.5          | 56.5          | 51.5          | 59.5          | 4             | 4                | 1                 | 1   | 15.5 | 0.45                 | 1.32     | 0.73                  | 0.223 |                         |       |       |
| 2CE                        | 40.5                            | 40.5          | 56.5          | 52            | 59            | 3             | 4                | 1                 | 1   | 14   | 0.31                 | 1.97     | 1.08                  | 0.263 |                         |       |       |
| 3DB                        | 43.5                            | 43.5          | 63.5          | 60.5          | 67.5          | 3             | 3                | 1.5               | 1.5 | 15   | 0.37                 | 1.60     | 0.88                  | 0.341 |                         |       |       |
| 3DC                        | 43.5                            | 42.5          | 63.5          | 58.5          | 67.5          | 3             | 5                | 1.5               | 1.5 | 17.5 | 0.37                 | 1.60     | 0.88                  | 0.455 |                         |       |       |
| 5DC                        | 43.5                            | 41.5          | 63.5          | 54.5          | 68.5          | 3             | 6                | 1.5               | 1.5 | 21.5 | 0.58                 | 1.03     | 0.57                  | 0.461 |                         |       |       |
| 2DE                        | 43.5                            | 42.5          | 63.5          | 55.5          | 68            | 3             | 6                | 1.5               | 1.5 | 20.5 | 0.55                 | 1.10     | 0.60                  | 0.462 |                         |       |       |
|                            | 43.5                            | 42            | 63.5          | 58            | 68.5          | 5             | 6                | 1.5               | 1.5 | 18.5 | 0.35                 | 1.70     | 0.93                  | 0.539 |                         |       |       |
| 2FB                        | 45                              | 45.5          | 71.5          | 67.5          | 75            | 3             | 4.5              | 2                 | 1.5 | 17   | 0.31                 | 1.90     | 1.05                  | 0.535 |                         |       |       |
| 7FB                        | 45                              | 44            | 71.5          | 63.5          | 75.5          | 3             | 5.5              | 2                 | 1.5 | 20.5 | 0.55                 | 1.10     | 0.60                  | 0.517 |                         |       |       |
|                            | 45                              | 44.5          | 71.5          | 60.5          | 77            | 3             | 7.5              | 2                 | 1.5 | 26   | 0.83                 | 0.73     | 0.40                  | 0.527 |                         |       |       |
| 2FE                        | 45                              | 43.5          | 71.5          | 65            | 75            | 3             | 7.5              | 2                 | 1.5 | 20.5 | 0.31                 | 1.90     | 1.05                  | 0.782 |                         |       |       |
| 5FE                        | 45                              | 43.5          | 71.5          | 59            | 76            | 3             | 7.5              | 2                 | 1.5 | 25   | 0.55                 | 1.10     | 0.60                  | 0.804 |                         |       |       |
|                            |                                 |               |               |               |               |               |                  |                   |     |      |                      |          |                       |       |                         |       |       |
| 2BC                        | 44.5                            | 45.5          | 57.5          | 54            | 58.5          | 3             | 3                | 0.6               | 0.6 | 11.5 | 0.29                 | 2.07     | 1.14                  | 0.161 |                         |       |       |
| 3CD                        | 45.5                            | 45.5          | 62.5          | 58            | 65            | 4             | 4.5              | 1                 | 1   | 15   | 0.38                 | 1.58     | 0.87                  | 0.272 |                         |       |       |
| 2BE                        | 45.5                            | 46            | 62.5          | 58.5          | 65            | 2.5           | 4                | 1                 | 1   | 15   | 0.28                 | 2.12     | 1.17                  | 0.32  |                         |       |       |
| 2CE                        | 48.5                            | 47            | 66.5          | 62.5          | 71.5          | 4             | 5.5              | 1.5               | 1.5 | 18   | 0.36                 | 1.69     | 0.93                  | 0.498 |                         |       |       |
| 3DB                        | 48.5                            | 48.5          | 71.5          | 67.5          | 74.5          | 3             | 3.5              | 1.5               | 1.5 | 16.5 | 0.37                 | 1.60     | 0.88                  | 0.431 |                         |       |       |
| 3DC                        | 48.5                            | 48.5          | 71.5          | 66.5          | 75            | 3             | 5.5              | 1.5               | 1.5 | 19   | 0.37                 | 1.60     | 0.88                  | 0.547 |                         |       |       |
| 2DE                        | 48.5                            | 47            | 71.5          | 64.5          | 76.5          | 5             | 7                | 1.5               | 1.5 | 21   | 0.36                 | 1.68     | 0.92                  | 0.738 |                         |       |       |
| 2EE                        | 52                              | 47.5          | 75            | 68            | 81            | 5             | 5                | 2                 | 2   | 22.5 | 0.34                 | 1.74     | 0.96                  | 0.905 |                         |       |       |
| 2FB                        | 50                              | 52.5          | 81.5          | 74.5          | 83.5          | 3             | 5                | 2                 | 1.5 | 19.5 | 0.35                 | 1.74     | 0.96                  | 0.765 |                         |       |       |
| 7FB                        | 50                              | 50            | 81.5          | 72            | 85.5          | 3.5           | 6                | 2                 | 1.5 | 23   | 0.55                 | 1.10     | 0.60                  | 0.726 |                         |       |       |
|                            | 50                              | 51            | 81.5          | 68.5          | 86            | 3             | 8                | 2                 | 1.5 | 29.5 | 0.83                 | 0.73     | 0.40                  | 0.727 |                         |       |       |
| 2FD                        | 50                              | 49.5          | 81.5          | 71            | 83.5          | 3             | 8                | 2                 | 1.5 | 23   | 0.35                 | 1.74     | 0.96                  | 1.08  |                         |       |       |
| 5FD                        | 50                              | 49            | 81.5          | 65.5          | 84.5          | 3             | 8                | 2                 | 1.5 | 27.5 | 0.55                 | 1.10     | 0.60                  | 1.1   |                         |       |       |
|                            |                                 |               |               |               |               |               |                  |                   |     |      |                      |          |                       |       |                         |       |       |
| 2BC                        | 49.5                            | 51            | 63.5          | 59.5          | 64.5          | 3             | 3                | 0.6               | 0.6 | 12   | 0.32                 | 1.88     | 1.04                  | 0.187 |                         |       |       |