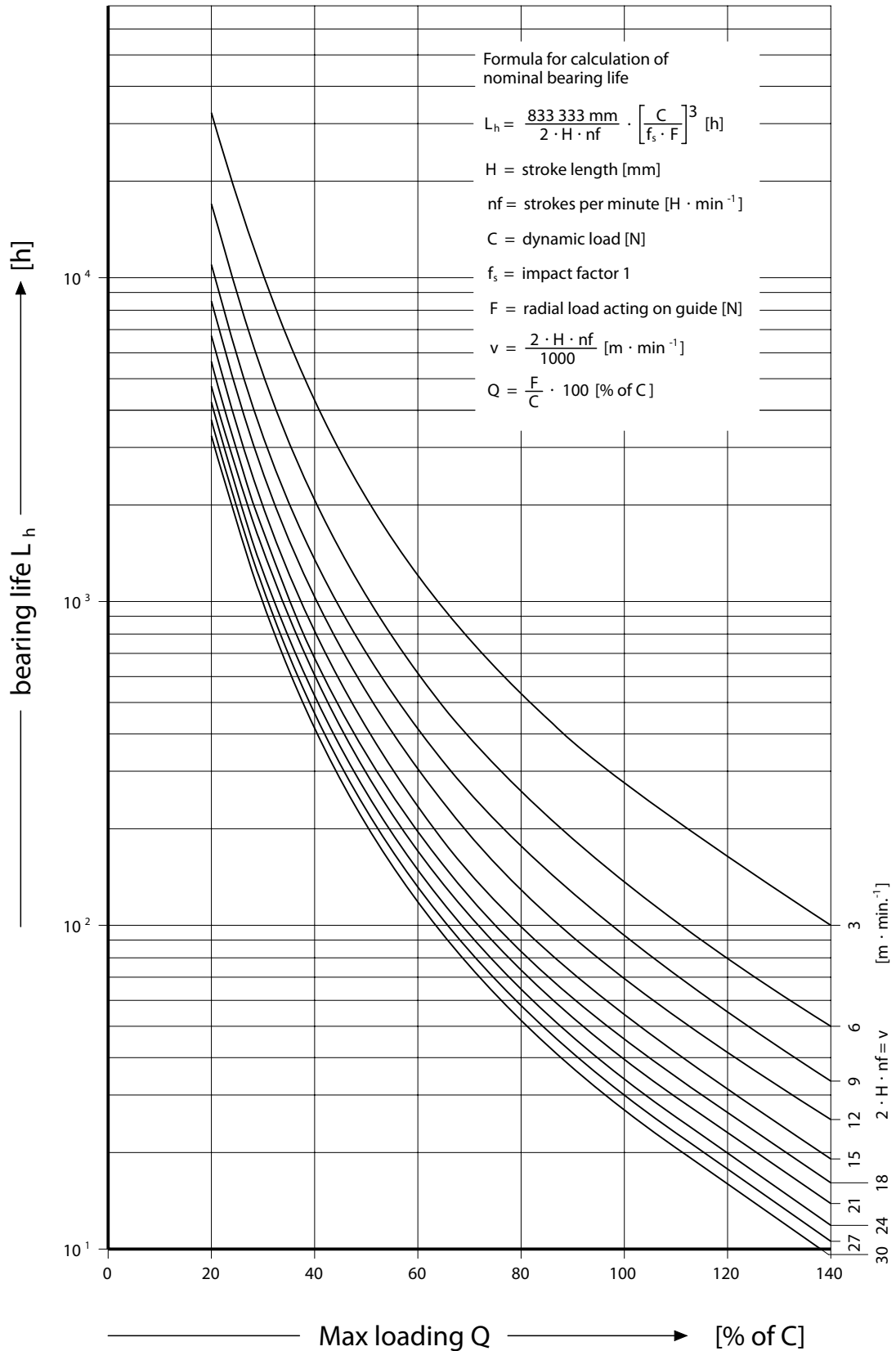


BALL GUIDES - LOAD DIAGRAM

Bearing life versus loading

Values shown are based on the Impact Factor of $f_s = 1$:

Application to normal conditions in respect of press and die set, with a maximum bearing temperature of 100 °C.



BALL GUIDES - CALCULATION TABLE

DYNAMIC LOAD FIGURES FOR BALL, BRASS OR ALUMINIUM

Definition:

The dynamic load index C in N constitutes a load with constant size and direction, at which 90 % of a sufficiently large quantity of equal bearings achieve a minimum of the service life of $+10^5$ m. This applies for solely longitudinal movement.

| Pillar- \varnothing d ₁ | Cage length l ₁ | Dynamic Load Index C for whole cage (N) | Pillar- \varnothing d ₁ | Cage length l ₁ | Dynamic Load Index C for whole cage (N) | Pillar- \varnothing d ₁ | Cage length l ₁ | Dynamic Load Index C for whole cage (N) |
|--------------------------------------|----------------------------|---|--------------------------------------|----------------------------|---|--------------------------------------|----------------------------|---|
| 8 | 40 | 750 | 24 | 120 | 9300 | 48 | 105 | 17100 |
| 10 | 24 | 1070 | 25 | 31 | 3200 | 48 | 120 | 19000 |
| 10 | 28 | 1190 | 25 | 40 | 3900 | 48 | 140 | 21400 |
| 10 | 31 | 1300 | 25 | 45 | 4200 | 48 | 160 | 23600 |
| 10 | 40 | 1830 | 25 | 50 | 4850 | 48 | 180 | 26000 |
| 10 | 45 | 1830 | 25 | 56 | 5200 | 48 | 200 | 28000 |
| 10 | 50 | 1930 | 25 | 63 | 5700 | 48 | 240 | 32000 |
| 10 | 56 | 2210 | 25 | 71 | 6300 | 50 | 50 | 9400 |
| 11 | 24 | 1090 | 25 | 80 | 6900 | 50 | 56 | 10200 |
| 11 | 28 | 1210 | 25 | 95 | 7900 | 50 | 63 | 11700 |
| 11 | 31 | 1330 | 25 | 105 | 8400 | 50 | 71 | 12500 |
| 11 | 40 | 1660 | 25 | 120 | 9300 | 50 | 80 | 13900 |
| 11 | 45 | 1860 | 30 | 40 | 5700 | 50 | 95 | 15900 |
| 11 | 50 | 1960 | 30 | 45 | 6400 | 50 | 105 | 17200 |
| 11 | 56 | 2250 | 30 | 50 | 7000 | 50 | 120 | 19100 |
| 12 | 24 | 1100 | 30 | 56 | 7600 | 50 | 128 | 19700 |
| 12 | 28 | 1230 | 30 | 63 | 8800 | 50 | 140 | 21400 |
| 12 | 31 | 1350 | 30 | 71 | 9300 | 50 | 160 | 23700 |
| 12 | 40 | 1680 | 30 | 75 | 9800 | 50 | 180 | 26000 |
| 12 | 45 | 1890 | 30 | 80 | 10400 | 50 | 200 | 28000 |
| 12 | 50 | 1990 | 30 | 95 | 11900 | 50 | 240 | 32000 |
| 12 | 56 | 2280 | 30 | 105 | 12800 | 60 | 80 | 15500 |
| 15 | 24 | 1880 | 30 | 120 | 14200 | 60 | 95 | 17700 |
| 15 | 28 | 2200 | 30 | 140 | 16000 | 60 | 105 | 19200 |
| 15 | 31 | 2500 | 30 | 160 | 17700 | 60 | 120 | 21300 |
| 15 | 45 | 3300 | 32 | 40 | 5800 | 60 | 140 | 23900 |
| 15 | 40 | 3050 | 32 | 45 | 6400 | 60 | 160 | 26500 |
| 15 | 50 | 3800 | 32 | 50 | 7100 | 60 | 180 | 29000 |
| 15 | 56 | 4050 | 32 | 56 | 7700 | 60 | 200 | 31000 |
| 15 | 63 | 4550 | 32 | 63 | 8800 | 60 | 240 | 35500 |
| 15 | 71 | 4950 | 32 | 71 | 9400 | 63 | 80 | 15500 |
| 16 | 24 | 1910 | 32 | 75 | 9900 | 63 | 95 | 17800 |
| 16 | 28 | 2230 | 32 | 80 | 10500 | 63 | 105 | 19300 |
| 16 | 31 | 2550 | 32 | 95 | 12000 | 63 | 120 | 21300 |
| 16 | 40 | 3100 | 32 | 105 | 12900 | 63 | 140 | 24000 |
| 16 | 45 | 3350 | 32 | 120 | 14300 | 63 | 160 | 26500 |
| 16 | 50 | 3850 | 32 | 140 | 16100 | 63 | 180 | 29000 |
| 16 | 56 | 4100 | 32 | 160 | 17800 | 63 | 200 | 31500 |
| 16 | 63 | 4600 | 38 | 45 | 7500 | 63 | 240 | 35500 |
| 16 | 71 | 5000 | 38 | 50 | 8200 | 80 | 120 | 41000 |
| 19 | 24 | 2300 | 38 | 56 | 8900 | 80 | 140 | 46500 |
| 19 | 28 | 2700 | 38 | 63 | 10300 | 80 | 160 | 52000 |
| 19 | 31 | 3050 | 38 | 71 | 10900 | 80 | 180 | 57000 |
| 19 | 40 | 3750 | 38 | 80 | 12100 | 80 | 200 | 62000 |
| 19 | 45 | 4050 | 38 | 95 | 13900 | 80 | 240 | 70000 |
| 19 | 50 | 4350 | 38 | 105 | 15000 | | | |
| 19 | 56 | 4950 | 38 | 120 | 16700 | | | |
| 19 | 63 | 5500 | 38 | 140 | 18700 | | | |
| 19 | 71 | 6100 | 38 | 160 | 20700 | | | |
| 19 | 80 | 6600 | 38 | 180 | 22600 | | | |
| 19 | 95 | 7600 | 38 | 200 | 24400 | | | |
| 20 | 24 | 2320 | 38 | 240 | 28000 | | | |
| 20 | 28 | 2700 | 40 | 45 | 7500 | | | |
| 20 | 31 | 3100 | 40 | 50 | 8200 | | | |
| 20 | 40 | 3750 | 40 | 56 | 9000 | | | |
| 20 | 45 | 4100 | 40 | 63 | 10300 | | | |
| 20 | 50 | 4400 | 40 | 71 | 11000 | | | |
| 20 | 56 | 5000 | 40 | 80 | 12200 | | | |
| 20 | 63 | 5600 | 40 | 95 | 14000 | | | |
| 20 | 71 | 6100 | 40 | 105 | 15100 | | | |
| 20 | 80 | 6600 | 40 | 120 | 16700 | | | |
| 20 | 95 | 7600 | 40 | 140 | 18800 | | | |
| 24 | 31 | 3150 | 40 | 160 | 20800 | | | |
| 24 | 40 | 3850 | 40 | 180 | 22700 | | | |
| 24 | 45 | 4200 | 40 | 200 | 24600 | | | |
| 24 | 50 | 4850 | 40 | 240 | 28000 | | | |
| 24 | 56 | 5100 | 48 | 50 | 9400 | | | |
| 24 | 63 | 5700 | 48 | 56 | 10200 | | | |
| 24 | 71 | 6300 | 48 | 63 | 11700 | | | |
| 24 | 80 | 6800 | 48 | 71 | 12400 | | | |
| 24 | 95 | 7800 | 48 | 80 | 13800 | | | |
| 24 | 105 | 8300 | 48 | 95 | 15900 | | | |

BALL GUIDES - CALCULATION TABLE

DYNAMIC LOAD FIGURES FOR RECIRCULATING BALL BUSH

Definition:

The dynamic load index C in N constitutes a load with constant size and direction, at which 90 % of a sufficiently large quantity of equal bearings achieve a minimum of the service life of $+10^5$ m. This applies for solely longitudinal movement.

| Pillar- \varnothing d ₁ | Cage length l ₁ | Dynamic Load Index C for whole cage (N) | Pillar- \varnothing d ₁ | Cage length l ₁ | Dynamic Load Index C for whole cage (N) |
|--------------------------------------|----------------------------|---|--------------------------------------|----------------------------|---|
| 20 | 47 | 2080 | 40 | 95 | 7600 |
| 25 | 60 | 2960 | 50 | 95 | 8800 |
| 32 | 77 | 5450 | 63 | 120 | 11800 |