



# BONFIX-kiinnitysholkit



**BONFIX 2000**

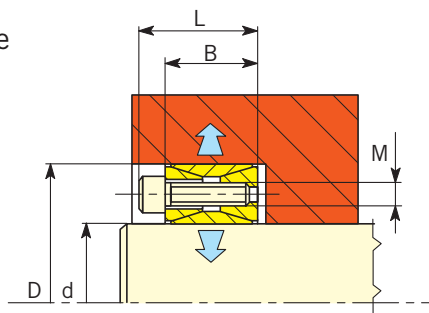
| d<br>mm | D<br>mm | B<br>mm | L<br>mm | M<br>mm | T <sub>s</sub><br>Nm | T<br>Nm | F<br>kN | P<br>N/mm <sup>2</sup> |
|---------|---------|---------|---------|---------|----------------------|---------|---------|------------------------|
| 17      | 47      | 20      | 26      | M 6     | 16                   | 260     | 31      | 104                    |
| 18      | 47      | 20      | 26      | M 6     | 16                   | 280     | 31      | 104                    |
| 19      | 47      | 20      | 26      | M 6     | 16                   | 290     | 31      | 104                    |
| 20      | 47      | 20      | 26      | M 6     | 16                   | 310     | 31      | 104                    |
| 22      | 47      | 20      | 26      | M 6     | 16                   | 340     | 31      | 104                    |
| 24      | 50      | 20      | 26      | M 6     | 16                   | 370     | 31      | 98                     |
| 25      | 50      | 20      | 26      | M 6     | 16                   | 390     | 31      | 98                     |
| 28      | 55      | 20      | 26      | M 6     | 16                   | 650     | 46      | 133                    |
| 30      | 55      | 20      | 26      | M 6     | 16                   | 700     | 47      | 133                    |
| 32      | 60      | 20      | 26      | M 6     | 16                   | 750     | 47      | 122                    |
| 35      | 60      | 20      | 26      | M 6     | 16                   | 820     | 47      | 122                    |
| 38      | 65      | 20      | 26      | M 6     | 16                   | 1100    | 58      | 141                    |
| 40      | 65      | 20      | 26      | M 6     | 16                   | 1170    | 59      | 141                    |
| 42      | 75      | 24      | 32      | M 8     | 40                   | 1670    | 80      | 145                    |
| 45      | 75      | 24      | 32      | M 8     | 40                   | 1790    | 80      | 145                    |
| 48      | 80      | 24      | 32      | M 8     | 40                   | 1900    | 79      | 136                    |
| 50      | 80      | 24      | 32      | M 8     | 40                   | 1990    | 80      | 136                    |
| 55      | 85      | 24      | 32      | M 8     | 40                   | 2740    | 100     | 160                    |
| 60      | 90      | 24      | 32      | M 8     | 40                   | 2990    | 100     | 151                    |
| 65      | 95      | 24      | 32      | M 8     | 40                   | 3240    | 100     | 143                    |
| 70      | 110     | 28      | 38      | M 10    | 78                   | 5550    | 159     | 160                    |
| 75      | 115     | 28      | 38      | M 10    | 78                   | 5950    | 159     | 153                    |
| 80      | 120     | 28      | 38      | M 10    | 78                   | 6350    | 159     | 146                    |
| 85      | 125     | 28      | 38      | M 10    | 78                   | 6740    | 159     | 140                    |
| 90      | 130     | 28      | 38      | M 10    | 78                   | 7140    | 159     | 135                    |
| 95      | 135     | 28      | 38      | M 10    | 78                   | 9000    | 189     | 156                    |
| 100     | 145     | 32      | 44      | M 12    | 135                  | 11600   | 232     | 164                    |
| 110     | 155     | 32      | 44      | M 12    | 135                  | 12750   | 232     | 153                    |
| 120     | 165     | 32      | 44      | M 12    | 135                  | 14800   | 247     | 153                    |
| 130     | 180     | 38      | 50      | M 12    | 135                  | 20150   | 310     | 134                    |
| 140     | 190     | 38      | 50      | M 12    | 135                  | 23850   | 341     | 140                    |
| 150     | 200     | 38      | 50      | M 12    | 135                  | 27850   | 371     | 145                    |
| 160     | 210     | 38      | 50      | M 12    | 135                  | 32200   | 403     | 150                    |
| 170     | 225     | 44      | 58      | M 14    | 215                  | 40300   | 475     | 148                    |
| 180     | 235     | 44      | 58      | M 14    | 215                  | 46600   | 518     | 154                    |
| 190     | 250     | 52      | 66      | M 14    | 215                  | 57300   | 604     | 139                    |
| 200     | 260     | 52      | 66      | M 14    | 215                  | 71000   | 711     | 158                    |
| 220     | 285     | 56      | 72      | M 16    | 335                  | 93200   | 849     | 158                    |
| 240     | 305     | 56      | 72      | M 16    | 335                  | 117300  | 979     | 170                    |

**BONFIX 2000**

| d<br>mm | D<br>mm | B<br>mm | L<br>mm | M<br>mm | T <sub>s</sub><br>Nm | T<br>Nm | F<br>kN | P<br>N/mm <sup>2</sup> |
|---------|---------|---------|---------|---------|----------------------|---------|---------|------------------------|
| 260     | 325     | 56      | 72      | M 16    | 335                  | 144000  | 1110    | 181                    |
| 280     | 355     | 66      | 84      | M 18    | 465                  | 177700  | 1271    | 158                    |
| 300     | 375     | 66      | 84      | M 18    | 465                  | 214100  | 1430    | 168                    |
| 320     | 405     | 78      | 98      | M 20    | 660                  | 295800  | 1852    | 168                    |
| 340     | 425     | 78      | 98      | M 20    | 660                  | 314300  | 1852    | 160                    |
| 360     | 455     | 90      | 112     | M 22    | 900                  | 413300  | 2300    | 159                    |
| 380     | 475     | 90      | 112     | M 22    | 900                  | 436300  | 2300    | 153                    |
| 400     | 495     | 90      | 112     | M 22    | 900                  | 459300  | 2300    | 147                    |
| 420     | 515     | 90      | 112     | M 22    | 900                  | 535800  | 2555    | 157                    |
| 440     | 545     | 102     | 130     | M 24    | 1130                 | 647600  | 2948    | 149                    |
| 460     | 565     | 102     | 130     | M 24    | 1130                 | 677000  | 2948    | 144                    |
| 480     | 585     | 102     | 130     | M 24    | 1130                 | 741800  | 3096    | 146                    |
| 500     | 605     | 102     | 130     | M 24    | 1130                 | 809500  | 3243    | 148                    |
| 520     | 630     | 102     | 130     | M 24    | 1130                 | 861000  | 3317    | 145                    |
| 540     | 650     | 102     | 130     | M 24    | 1130                 | 894000  | 3317    | 140                    |
| 560     | 670     | 102     | 130     | M 24    | 1130                 | 989000  | 3538    | 146                    |
| 580     | 690     | 102     | 130     | M 24    | 1130                 | 1067000 | 3686    | 148                    |
| 600     | 710     | 102     | 130     | M 24    | 1130                 | 1103800 | 3686    | 143                    |
| 620     | 730     | 102     | 130     | M 24    | 1130                 | 1186200 | 3832    | 145                    |
| 640     | 750     | 102     | 130     | M 24    | 1130                 | 1271600 | 3980    | 147                    |
| 660     | 770     | 102     | 130     | M 24    | 1130                 | 1359900 | 4127    | 148                    |
| 680     | 790     | 102     | 130     | M 24    | 1130                 | 1401100 | 4127    | 144                    |
| 700     | 810     | 102     | 130     | M 24    | 1130                 | 1545400 | 4423    | 150                    |
| 720     | 830     | 102     | 130     | M 24    | 1130                 | 1589500 | 4423    | 147                    |
| 740     | 850     | 102     | 130     | M 24    | 1130                 | 1688100 | 4569    | 149                    |
| 760     | 870     | 102     | 130     | M 24    | 1130                 | 1789700 | 4717    | 149                    |
| 780     | 890     | 102     | 130     | M 24    | 1130                 | 1865500 | 4791    | 149                    |
| 800     | 910     | 102     | 130     | M 24    | 1130                 | 1942700 | 4865    | 148                    |
| 820     | 930     | 102     | 130     | M 24    | 1130                 | 2051600 | 5012    | 149                    |
| 840     | 950     | 102     | 130     | M 24    | 1130                 | 2163500 | 5160    | 150                    |
| 860     | 970     | 102     | 130     | M 24    | 1130                 | 2278300 | 5306    | 151                    |
| 880     | 990     | 102     | 130     | M 24    | 1130                 | 2396000 | 5454    | 152                    |
| 900     | 1010    | 102     | 130     | M 24    | 1130                 | 2483600 | 5528    | 151                    |
| 920     | 1030    | 102     | 130     | M 24    | 1130                 | 2572600 | 5602    | 150                    |
| 940     | 1050    | 102     | 130     | M 24    | 1130                 | 2697700 | 5749    | 151                    |
| 960     | 1070    | 102     | 130     | M 24    | 1130                 | 2825800 | 5897    | 152                    |
| 980     | 1090    | 102     | 130     | M 24    | 1130                 | 2920700 | 5970    | 151                    |
| 1000    | 1110    | 102     | 130     | M 24    | 1130                 | 3017100 | 6044    | 150                    |

Keskisuurille momenteille

Ei keskittävä



| BONFIX 2000<br>tuuma | d<br>tuuma | D<br>tuuma | B<br>tuuma | L<br>tuuma | M<br>mm | T <sub>s</sub><br>jalkaa-pauna | T<br>jalkaa-pauna | F<br>pauna | P<br>pauna/<br>neliötuuma |
|----------------------|------------|------------|------------|------------|---------|--------------------------------|-------------------|------------|---------------------------|
| 7/8"                 | 0,8750     | 1,850      | 0,787      | 1,023      | M 6     | 11                             | 226               | 6202       | 13293                     |
| 1                    | 1,0000     | 1,969      | 0,787      | 1,023      | M 6     | 11                             | 258               | 6202       | 12490                     |
| 1 1/8                | 1,1250     | 2,165      | 0,787      | 1,023      | M 6     | 11                             | 436               | 9303       | 17038                     |
| 1 1/4                | 1,2500     | 2,362      | 0,787      | 1,023      | M 6     | 11                             | 485               | 9303       | 15617                     |
| 1 7/16               | 1,4375     | 2,559      | 0,787      | 1,023      | M 6     | 11                             | 697               | 11629      | 18019                     |
| 1 1/2                | 1,5000     | 2,559      | 0,787      | 1,023      | M 6     | 11                             | 727               | 11629      | 18019                     |
| 1 5/8                | 1,6250     | 2,953      | 0,945      | 1,260      | M 8     | 27                             | 1186              | 17516      | 19993                     |
| 1 11/16              | 1,6875     | 2,953      | 0,945      | 1,260      | M 8     | 27                             | 1232              | 17516      | 19993                     |
| 1 3/4                | 1,7500     | 2,953      | 0,945      | 1,260      | M 8     | 27                             | 1277              | 17516      | 19993                     |
| 1 7/8                | 1,8750     | 3,150      | 0,945      | 1,260      | M 8     | 27                             | 1368              | 17516      | 18742                     |
| 1 15/16              | 1,9375     | 3,150      | 0,945      | 1,260      | M 8     | 27                             | 1331              | 16485      | 17640                     |
| 2                    | 2,0000     | 3,346      | 0,945      | 1,260      | M 8     | 27                             | 1717              | 20607      | 20758                     |
| 2 3/16               | 2,1875     | 3,543      | 0,945      | 1,260      | M 8     | 27                             | 1878              | 20607      | 19604                     |
| 2 1/4                | 2,2500     | 3,543      | 0,945      | 1,260      | M 8     | 27                             | 1932              | 20607      | 19604                     |
| 2 3/8                | 2,3750     | 3,531      | 0,945      | 1,260      | M 8     | 27                             | 2039              | 20607      | 19671                     |
| 2 7/16               | 2,4375     | 3,740      | 0,945      | 1,260      | M 8     | 27                             | 2093              | 20607      | 18571                     |
| 2 1/2                | 2,5000     | 3,740      | 0,945      | 1,260      | M 8     | 27                             | 2147              | 20607      | 18571                     |
| 2 11/16              | 2,6875     | 4,331      | 1,102      | 1,496      | M 10    | 52                             | 3485              | 31118      | 20169                     |
| 2 3/4                | 2,7500     | 4,337      | 1,079      | 1,473      | M 10    | 52                             | 3566              | 31118      | 20141                     |
| 2 15/16              | 2,9375     | 4,528      | 1,102      | 1,496      | M 10    | 52                             | 3809              | 31118      | 19291                     |
| 3                    | 3,0000     | 4,724      | 1,102      | 1,496      | M 10    | 52                             | 3890              | 31118      | 18491                     |
| 3 7/16               | 3,4375     | 5,118      | 1,102      | 1,496      | M 10    | 52                             | 4457              | 31118      | 17067                     |
| 3 1/2                | 3,5000     | 5,118      | 1,102      | 1,496      | M 10    | 52                             | 4538              | 31118      | 17067                     |
| 4                    | 4,0000     | 5,843      | 1,299      | 1,771      | M 12    | 91                             | 7677              | 46065      | 20423                     |
| 4 7/16               | 4,4375     | 6,496      | 1,299      | 1,711      | M 12    | 91                             | 9085              | 49136      | 19594                     |
| 4 1/2                | 4,5000     | 6,496      | 1,299      | 1,711      | M 12    | 91                             | 9213              | 49136      | 19594                     |
| 4 15/16              | 4,9375     | 7,087      | 1,496      | 1,968      | M 12    | 91                             | 12636             | 61420      | 17169                     |
| 5                    | 5,0000     | 7,087      | 1,496      | 1,968      | M 12    | 91                             | 12796             | 61420      | 17169                     |

|                             |                                                                                         |
|-----------------------------|-----------------------------------------------------------------------------------------|
| T <sub>s</sub> (ft-lb)      | Lukitusruuvien kiristysmomentti                                                         |
| T (ft-lb)<br>F (lb)         | Kiristysmomentilla T <sub>s</sub> siirrettävissä oleva vääntömomentti tai aksiaalivoima |
| p (lb/in <sup>2</sup> )     | Navan pintapaine                                                                        |
| Suuremmat koot pyydettyessä |                                                                                         |





## BONFIX 8100

| d<br>mm | ds<br>mm        | D<br>mm | B<br>mm | L<br>mm | I<br>mm | H<br>mm | M<br>mm | Ts<br>Nm | T<br>Nm                     | F<br>kN               |
|---------|-----------------|---------|---------|---------|---------|---------|---------|----------|-----------------------------|-----------------------|
| 16      | 13 - 14         | 41      | 15      | 19      | 12,5    | 1,5     | 6       | 13       | 70 - 90                     | 11 - 13               |
| 18      | 15 - 16         | 44      | 15      | 19      | 12,5    | 1,5     | 6       | 13       | 80 - 110                    | 11 - 14               |
| 20      | 17 - 18         | 47      | 15      | 19      | 12,5    | 1,5     | 6       | 13       | 150 - 180                   | 18 - 20               |
| 24      | 19 - 20 - 22    | 50      | 18      | 22      | 15      | 2       | 6       | 13       | 165 - 225 - 295             | 17 - 23 - 27          |
| 26      | 20 - 22 - 24    | 51,5    | 18      | 22      | 15      | 2       | 6       | 13       | 230 - 300 - 350             | 23 - 27 - 29          |
| 30      | 24 - 25 - 26    | 60      | 20      | 24      | 17      | 2       | 6       | 13       | 370 - 420 - 470             | 31 - 34 - 36          |
| 36      | 27 - 30 - 33    | 72      | 22      | 27,5    | 19      | 2       | 8       | 30       | 480 - 650 - 860             | 36 - 43 - 52          |
| 38      |                 |         |         |         |         |         |         |          |                             |                       |
| 40      | 34              | 80      | 24      | 29,5    | 20,5    | 2       | 8       | 30       | 880                         | 52                    |
| 44      | 35 - 37         | 80      | 24      | 29,5    | 20,5    | 2       | 8       | 30       | 810 - 960                   | 46 - 52               |
| 50      | 38 - 40 - 42    | 90      | 26      | 31,5    | 22      | 2,5     | 8       | 30       | 1150 - 1300 - 1520          | 61 - 65 - 72          |
| 55      | 42 - 45 - 48    | 100     | 29      | 34,5    | 24,5    | 3       | 8       | 30       | 1300 - 1600 - 1900          | 62 - 71 - 79          |
| 60      | 48 - 50 - 52    | 110     | 29      | 34,5    | 24,5    | 3       | 8       | 30       | 1700 - 1950 - 2160          | 71 - 78 - 83          |
| 62      |                 |         |         |         |         |         |         |          |                             |                       |
| 68      | 50 - 55 - 60    | 115     | 29,5    | 35      | 24,5    | 3,5     | 8       | 30       | 1900 - 2500 - 3150          | 76 - 91 - 105         |
| 75      | 55 - 60 - 65    | 138     | 31      | 38      | 25      | 4       | 10      | 60       | 2700 - 3400 - 4100          | 105 - 120 - 132       |
| 80      | 60 - 65 - 70    | 141     | 31      | 38      | 25      | 4       | 10      | 60       | 3300 - 4100 - 4950          | 110 - 126 - 141       |
| 85      | 65 - 70 - 75    | 155     | 38      | 45      | 31,5    | 4       | 10      | 60       | 5500 - 6600 - 7900          | 169 - 189 - 211       |
| 90      |                 |         |         |         |         |         |         |          |                             |                       |
| 95      | 70 - 75 - 80    | 170     | 43,5    | 50,5    | 36,5    | 4,5     | 10      | 60       | 6200 - 7400 - 8600          | 186 - 197 - 215       |
| 100     |                 |         |         |         |         |         |         |          |                             |                       |
| 105     | 80 - 85 - 90    | 185     | 49      | 57      | 40,5    | 5       | 12      | 100      | 10500 - 11800 - 13700       | 263 - 278 - 304       |
| 110     |                 |         |         |         |         |         |         |          |                             |                       |
| 115     | 85 - 90 - 95    | 197     | 53      | 61      | 45      | 5       | 12      | 100      | 12500 - 14100 - 16000       | 294 - 313 - 337       |
| 120     |                 |         |         |         |         |         |         |          |                             |                       |
| 125     | 90 - 95 - 100   | 215     | 53,5    | 61,5    | 45      | 5,5     | 12      | 100      | 14500 - 16600 - 18800       | 322 - 349 - 376       |
| 130     | 95 - 100 - 110  | 215     | 53,5    | 61,5    | 45      | 5,5     | 12      | 100      | 17000 - 18400 - 22000       | 358 - 368 - 400       |
| 130     | 95 - 100 - 110  | 230     | 57,5    | 66,5    | 47      | 6,5     | 14      | 160      | 18400 - 20800 - 26200       | 387 - 416 - 476       |
| 135     |                 |         |         |         |         |         |         |          |                             |                       |
| 140     | 100 - 105 - 115 | 230     | 58      | 67      | 47      | 7       | 14      | 160      | 19900 - 22200 - 27800       | 398 - 423 - 483       |
| 150     | 110 - 120 - 125 | 263     | 63      | 72      | 51      | 7,5     | 14      | 160      | 27000 - 32000 - 36200       | 491 - 533 - 579       |
| 155     |                 |         |         |         |         |         |         |          |                             |                       |
| 160     | 120 - 130 - 135 | 290     | 68      | 79      | 56      | 7,5     | 16      | 250      | 39000 - 48000 - 51000       | 650 - 738 - 756       |
| 165     |                 |         |         |         |         |         |         |          |                             |                       |
| 170     | 130 - 140 - 145 | 300     | 69      | 80      | 56      | 8       | 16      | 250      | 46500 - 53000 - 59000       | 715 - 757 - 814       |
| 175     |                 |         |         |         |         |         |         |          |                             |                       |
| 180     | 140 - 150 - 155 | 320     | 85,5    | 96,5    | 71,5    | 8       | 16      | 250      | 66000 - 76000 - 83000       | 943 - 1013 - 1071     |
| 185     |                 |         |         |         |         |         |         |          |                             |                       |
| 190     | 150 - 160 - 165 | 340     | 85,5    | 96,5    | 71,5    | 8       | 16      | 250      | 82000 - 91000 - 102000      | 1093 - 1138 - 1236    |
| 195     |                 |         |         |         |         |         |         |          |                             |                       |
| 200     |                 |         |         |         |         |         |         |          |                             |                       |
| 220     |                 |         |         |         |         |         |         |          |                             |                       |
| 220     | 160 - 170 - 180 | 370     | 105     | 118     | 88      | 11      | 20      | 480      | 105000 - 122000 - 138000    | 1313 - 1435 - 1533    |
| 240     | 170 - 180 - 200 | 405     | 109     | 122     | 92      | 11      | 20      | 480      | 125000 - 145000 - 182000    | 1471 - 1611 - 1820    |
| 260     | 190 - 200 - 220 | 430     | 120     | 133     | 103     | 11      | 20      | 480      | 165000 - 190000 - 238000    | 1737 - 1900 - 2164    |
| 280     | 210 - 220 - 240 | 460     | 135     | 148     | 114     | 14      | 20      | 480      | 220000 - 245000 - 300000    | 2095 - 2227 - 2500    |
| 300     | 220 - 230 - 250 | 485     | 140     | 155     | 122     | 16      | 24      | 840      | 297000 - 330000 - 399000    | 2700 - 2870 - 3192    |
| 320     | 240 - 250 - 270 | 520     | 142     | 157     | 122     | 16      | 24      | 840      | 331000 - 365000 - 437000    | 2758 - 2920 - 3237    |
| 340     | 250 - 260 - 280 | 570     | 159     | 174     | 137     | 18      | 24      | 840      | 429000 - 469000 - 556000    | 3432 - 3608 - 3971    |
| 360     | 270 - 280 - 290 | 590     | 163     | 178     | 140     | 20      | 24      | 840      | 545000 - 592000 - 694000    | 4037 - 4229 - 4786    |
| 390     | 290 - 300 - 320 | 650     | 167     | 184     | 144     | 20      | 27      | 1250     | 704000 - 760000 - 879000    | 4855 - 5067 - 5494    |
| 420     | 320 - 330 - 350 | 670     | 186     | 203     | 165     | 20      | 27      | 1250     | 827000 - 876000 - 1000000   | 5169 - 5309 - 5714    |
| 440     | 340 - 350 - 370 | 740     | 194     | 211     | 172     | 20      | 27      | 1250     | 1040000 - 1110000 - 1257000 | 6118 - 6343 - 6795    |
| 460     | 360 - 370 - 390 | 770     | 195     | 212     | 172     | 20      | 27      | 1250     | 1214000 - 1291000 - 1452000 | 6744 - 6978 - 7446    |
| 470     | 370 - 380 - 400 | 705     | 220     | 237     | 198     | 20      | 27      | 1250     | 950000 - 1000000 - 1150000  | 5135 - 5263 - 5750    |
| 480     | 380 - 390 - 410 | 800     | 214     | 233     | 188     | 22      | 30      | 1650     | 1430000 - 1515000 - 1695000 | 7526 - 7769 - 8268    |
| 500     | 400 - 410 - 430 | 850     | 215     | 234     | 190     | 22      | 30      | 1650     | 1645000 - 1739000 - 1934000 | 8225 - 8483 - 8995    |
| 530     | 430 - 440 - 460 | 850     | 230     | 249     | 198     | 29      | 30      | 1650     | 1890000 - 1980000 - 2190000 | 8790 - 9000 - 9520    |
| 560     | 450 - 460 - 480 | 940     | 240     | 259     | 213     | 22      | 30      | 1650     | 2306000 - 2420000 - 2660000 | 10249 - 10522 - 11083 |
| 590     | 470 - 480 - 500 | 960     | 260     | 279     | 228     | 28      | 30      | 1650     | 2852000 - 2986000 - 3267000 | 12136 - 12442 - 13068 |
| 620     | 500 - 520 - 540 | 970     | 286     | 305     | 254     | 28      | 30      | 1650     | 3194000 - 3485000 - 3791000 | 12776 - 13404 - 14041 |
| 660     | 530 - 550 - 570 | 1040    | 306     | 327     | 275     | 31      | 33      | 2250     | 3661000 - 3975000 - 4302000 | 13815 - 14455 - 15095 |
| 700     | 560 - 580 - 600 | 1140    | 294     | 315     | 260     | 32      | 33      | 2250     | 4184000 - 4519000 - 4869000 | 14943 - 15583 - 16230 |
| 750     | 600 - 620 - 650 | 1150    | 320     | 341     | 278     | 38      | 33      | 2250     | 5281000 - 5672000 - 6287000 | 17603 - 18297 - 19345 |
| 800     | 640 - 660 - 700 | 1230    | 352     | 373     | 296     | 50      | 33      | 2250     | 6387000 - 6832000 - 7769000 | 19959 - 20703 - 22197 |

T (Nm) = Kiristysmomentilla Ts siirrettävissä oleva vääntömomentti tai aksiaalivoima  
F (kN)

 = Kiristys momenttiavaimella

Ts (Nm) = Lukitusruuvien kiristysmomentti



## BONFIX 8200

| d<br>mm | ds<br>mm        | D<br>mm | B<br>mm | L<br>mm | I<br>mm | H<br>mm | M<br>mm | Ts<br>Nm | T<br>Nm                     | F<br>kN               |
|---------|-----------------|---------|---------|---------|---------|---------|---------|----------|-----------------------------|-----------------------|
| 50      | 38 - 40 - 42    | 90      | 26      | 31,5    | 22      | 2,5     | 8       | 34       | 1600 - 1800 - 2000          | 84 - 90 - 95          |
| 55      | 42 - 45 - 48    | 100     | 29      | 34,5    | 24,5    | 3       | 8       | 34       | 1700 - 2100 - 2500          | 81 - 93 - 104         |
| 60      | 48 - 50 - 52    | 110     | 29      | 34,5    | 24,5    | 3       | 8       | 34       | 2300 - 2500 - 2900          | 96 - 100 - 112        |
| 62      |                 |         |         |         |         |         |         |          |                             |                       |
| 68      | 50 - 55 - 60    | 115     | 29,5    | 35      | 24,5    | 3,5     | 8       | 34       | 2400 - 3200 - 4000          | 96 - 116 - 133        |
| 75      | 55 - 60 - 65    | 138     | 31      | 38      | 25      | 4       | 10      | 70       | 3800 - 4900 - 6000          | 138 - 163 - 185       |
| 80      | 60 - 65 - 70    | 141     | 31      | 38      | 25      | 4       | 10      | 70       | 4300 - 5400 - 6500          | 143 - 166 - 186       |
| 85      | 65 - 70 - 75    | 155     | 38      | 45      | 31,5    | 4       | 10      | 70       | 6000 - 7200 - 8600          | 185 - 206 - 229       |
| 90      |                 |         |         |         |         |         |         |          |                             |                       |
| 95      | 70 - 75 - 80    | 170     | 43,5    | 50,5    | 36,5    | 4,5     | 10      | 70       | 7500 - 9000 - 10600         | 214 - 240 - 265       |
| 100     |                 |         |         |         |         |         |         |          |                             |                       |
| 105     | 80 - 85 - 90    | 185     | 49      | 57      | 40,5    | 5       | 12      | 120      | 12800 - 14800 - 17000       | 320 - 348 - 378       |
| 110     |                 |         |         |         |         |         |         |          |                             |                       |
| 115     | 85 - 90 - 95    | 197     | 53      | 61      | 45      | 5       | 12      | 120      | 13700 - 15800 - 18200       | 322 - 351 - 383       |
| 120     |                 |         |         |         |         |         |         |          |                             |                       |
| 125     | 90 - 95 - 100   | 215     | 53,5    | 61,5    | 45      | 5,5     | 12      | 120      | 16600 - 19000 - 21500       | 369 - 400 - 430       |
| 130     | 95 - 100 - 110  | 215     | 53,5    | 61,5    | 45      | 5,5     | 12      | 120      | 18300 - 21200 - 25000       | 385 - 424 - 455       |
| 130     | 95 - 100 - 110  | 230     | 57,5    | 66,5    | 47      | 6,5     | 14      | 190      | 20500 - 23500 - 29500       | 432 - 470 - 536       |
| 135     |                 |         |         |         |         |         |         |          |                             |                       |
| 140     | 100 - 105 - 115 | 230     | 58      | 67      | 47      | 7       | 14      | 190      | 23500 - 26000 - 32500       | 470 - 495 - 565       |
| 150     | 110 - 120 - 125 | 263     | 63      | 72      | 51      | 7,5     | 14      | 190      | 31500 - 35000 - 43000       | 573 - 583 - 688       |
| 155     |                 |         |         |         |         |         |         |          |                             |                       |
| 160     | 120 - 130 - 135 | 290     | 68      | 79      | 56      | 7,5     | 16      | 290      | 45000 - 49000 - 59000       | 750 - 754 - 874       |
| 165     |                 |         |         |         |         |         |         |          |                             |                       |
| 170     | 130 - 140 - 145 | 300     | 69      | 80      | 56      | 8       | 16      | 290      | 55000 - 60000 - 71000       | 846 - 857 - 979       |
| 175     |                 |         |         |         |         |         |         |          |                             |                       |
| 180     | 140 - 150 - 155 | 320     | 85,5    | 96,5    | 71,5    | 8       | 16      | 290      | 81000 - 88000 - 101000      | 1157 - 1173 - 1303    |
| 185     |                 |         |         |         |         |         |         |          |                             |                       |
| 190     | 150 - 160 - 165 | 340     | 85,5    | 96,5    | 71,5    | 8       | 16      | 290      | 97000 - 104000 - 120000     | 1293 - 1300 - 1455    |
| 195     |                 |         |         |         |         |         |         |          |                             |                       |
| 200     |                 |         |         |         |         |         |         |          |                             |                       |
| 220     | 160 - 170 - 180 | 370     | 105     | 118     | 88      | 11      | 20      | 570      | 130000 - 150000 - 170000    | 1625 - 1765 - 1889    |
| 240     | 170 - 180 - 200 | 405     | 109     | 122     | 92      | 11      | 20      | 570      | 152000 - 174000 - 219000    | 1788 - 1933 - 2190    |
| 260     | 190 - 200 - 220 | 430     | 120     | 133     | 103     | 11      | 20      | 570      | 215000 - 240000 - 300000    | 2263 - 2400 - 2727    |
| 280     | 210 - 220 - 240 | 460     | 135     | 148     | 114     | 14      | 20      | 570      | 282000 - 313000 - 380000    | 2686 - 2845 - 3167    |
| 300     | 220 - 230 - 250 | 485     | 140     | 155     | 122     | 16      | 24      | 990      | 365000 - 403000 - 487000    | 3318 - 3504 - 3896    |
| 320     | 240 - 250 - 270 | 520     | 142     | 157     | 122     | 16      | 24      | 990      | 444000 - 488000 - 580000    | 3700 - 3904 - 4296    |
| 340     | 250 - 260 - 280 | 570     | 159     | 174     | 137     | 18      | 24      | 990      | 536000 - 586000 - 693000    | 4288 - 4508 - 4950    |
| 360     | 270 - 280 - 290 | 590     | 163     | 178     | 140     | 20      | 24      | 990      | 687000 - 744000 - 830000    | 5089 - 5314 - 5724    |
| 390     | 290 - 300 - 320 | 650     | 167     | 184     | 144     | 20      | 27      | 1480     | 859000 - 962000 - 1068000   | 5924 - 6413 - 6675    |
| 420     | 320 - 330 - 350 | 670     | 186     | 203     | 165     | 20      | 27      | 1480     | 1065000 - 1141000 - 1301000 | 6656 - 6915 - 7434    |
| 440     | 340 - 350 - 370 | 740     | 194     | 211     | 172     | 20      | 27      | 1480     | 1333000 - 1421000 - 1606000 | 7841 - 8120 - 8681    |
| 460     | 360 - 370 - 390 | 770     | 195     | 212     | 172     | 20      | 27      | 1480     | 1532000 - 1626000 - 1826000 | 8511 - 8789 - 9364    |
| 470     | 370 - 380 - 400 | 705     | 220     | 237     | 198     | 20      | 27      | 1480     | 1100000 - 1200000 - 1400000 | 5946 - 6316 - 7000    |
| 480     | 380 - 390 - 410 | 800     | 214     | 233     | 188     | 22      | 30      | 1980     | 1822000 - 1929000 - 2151000 | 9589 - 9892 - 10493   |
| 500     | 400 - 410 - 430 | 850     | 215     | 234     | 190     | 22      | 30      | 1980     | 2075000 - 2191000 - 2432000 | 10375 - 10688 - 11312 |
| 530     | 430 - 440 - 460 | 850     | 230     | 249     | 198     | 29      | 30      | 1980     | 2100000 - 2200000 - 2430000 | 9767 - 10000 - 10565  |
| 560     | 450 - 460 - 480 | 940     | 242     | 261     | 213     | 22      | 30      | 1980     | 2799000 - 2938000 - 3223000 | 12440 - 12774 - 13429 |
| 590     | 470 - 480 - 500 | 960     | 260     | 279     | 228     | 28      | 30      | 1980     | 3265000 - 3418000 - 3736000 | 13894 - 14242 - 14944 |
| 620     | 500 - 520 - 540 | 970     | 286     | 305     | 254     | 28      | 30      | 1980     | 3742000 - 4078000 - 4430000 | 14968 - 15685 - 16407 |

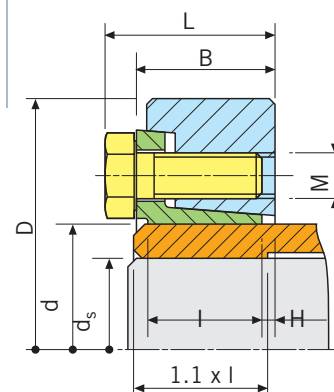
## Tekniset tiedot

## Toleranssit

| d                          | H7 - f7 |
|----------------------------|---------|
| $d_s \leq \varnothing 160$ | H7 - h6 |
| $d_s > \varnothing 160$    | H7 - g6 |

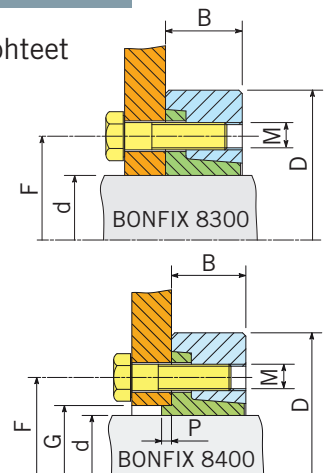
Akselin- ja navan  
pinnankarheuden tulisi olla  
pienempi kuin  
 $Ra \leq 3,2$  mm  
(hyvä viimeistely sorvilla)

## BONFIX 8100 - 8200



## BONFIX 8300 - 8400

Erikoiskäyttökohteet  
jarrulevyille,  
vauhtipyörille,  
ketjupyörille,  
nostimille ja  
rummuille.  
Tekniset tiedot  
pyydettyä.





## BONFIX 8000

Ulkopuolinen  
kiristys  
Erittäin hyvin  
keskittävä

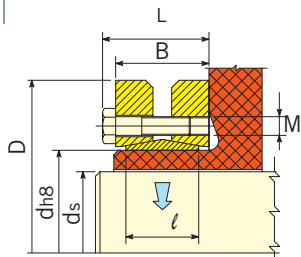
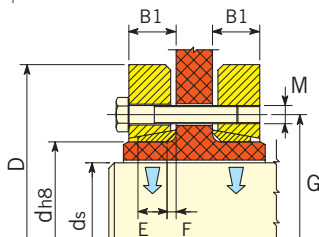
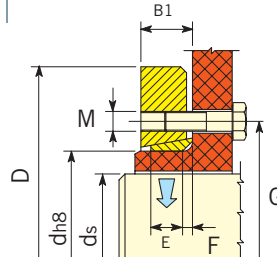
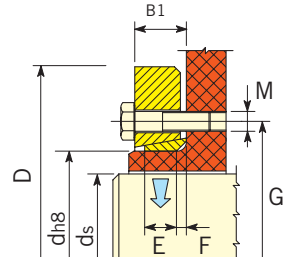
BONFIX 8000-8000L / BONFIX  
HALKAISTU

Akselin- ja navan pinnankarheuden  
tulisi olla pienempi kuin  $Ra \leq 3,2$   
mm. BONFIX 8000 TH/PH -mallin  
momentin siirtokyky vähenee 50 %:iin  
taulukon arvosta.

## Toleranssit

| $d_s$ | $d_s$ | ISO:sta   | maks. vällys |
|-------|-------|-----------|--------------|
| >     | <     |           |              |
| 18    | 30    | H 6 / j 6 | 0,017        |
| 30    | 50    | H 6 / h 6 | 0,032        |
| 50    | 80    | H 6 / g 6 | 0,048        |
| 80    | 120   |           | 0,069        |
| 120   | 180   |           | 0,079        |
| 180   | 250   | H 7 / g 6 | 0,090        |
| 250   | 315   |           | 0,101        |
| 315   | 400   |           | 0,111        |
| 400   | 500   |           | 0,123        |

BONFIX 8000

BONFIX 8000  
halkaistuBONFIX 8000  
halkaistu THBONFIX 8000  
halkaistu puolikas PH

## BONFIX 8000

| d<br>mm | $d_s$<br>mm     | D<br>mm | L<br>mm | B<br>mm | l<br>mm | M<br>mm | $T_s$<br>Nm | T<br>Nm                     | F<br>kN            |
|---------|-----------------|---------|---------|---------|---------|---------|-------------|-----------------------------|--------------------|
| 14      | 10 - 11 - 12    | 38      | 15      | 11      | 9       | M 5     | 3,5         | 28 - 38 - 50                | 5 - 7 - 9          |
| 16      | 12 - 13 - 14    | 41      | 19      | 15      | 11      | M 5     | 4           | 50 - 70 - 90                | 9 - 10 - 13        |
| 18      | 14 - 15 - 16    | 44      | 19      | 15      | 12      | M 5     | 4           | 85 - 100 - 130              | 16 - 18 - 20       |
| 20      | 15 - 16 - 18    | 50      | 23      | 19      | 14      | M 5     | 4           | 130 - 150 - 200             | 20 - 22 - 25       |
| 24      | 19 - 20 - 21    | 50      | 23      | 19      | 14      | M 5     | 5           | 180 - 210 - 250             | 26 - 27 - 29       |
| 30      | 24 - 25 - 26    | 60      | 25      | 21      | 16      | M 5     | 6           | 310 - 340 - 380             | 26 - 27 - 28       |
| 36      | 28 - 30 - 31    | 72      | 27      | 23      | 18      | M 6     | 12          | 460 - 590 - 630             | 50 - 54 - 58       |
| 44      | 32 - 35 - 36    | 80      | 29      | 25      | 20      | M 6     | 12          | 630 - 780 - 860             | 65 - 74 - 77       |
| 50      | 38 - 40 - 42    | 90      | 31      | 27      | 22      | M 6     | 12          | 940 - 1100 - 1300           | 79 - 85 - 90       |
| 55      | 42 - 45 - 48    | 100     | 34      | 30      | 23      | M 6     | 12          | 1200 - 1500 - 1900          | 80 - 90 - 100      |
| 62      | 48 - 50 - 52    | 110     | 34      | 30      | 23      | M 6     | 12          | 1800 - 2200 - 2400          | 100 - 110 - 120    |
| 68      | 50 - 55 - 60    | 115     | 34      | 30      | 23      | M 6     | 12          | 2000 - 2500 - 3100          | 100 - 110 - 120    |
| 75      | 55 - 60 - 65    | 138     | 38      | 32      | 25      | M 8     | 30          | 2500 - 3200 - 3900          | 120 - 140 - 150    |
| 80      | 60 - 65 - 70    | 145     | 38      | 32      | 25      | M 8     | 30          | 3200 - 3900 - 4600          | 120 - 140 - 160    |
| 90      | 65 - 70 - 75    | 155     | 45      | 39      | 30      | M 8     | 30          | 4700 - 6000 - 7200          | 170 - 190 - 210    |
| 100     | 70 - 75 - 80    | 170     | 49,5    | 44      | 34      | M 8     | 30          | 6900 - 7500 - 9000          | 180 - 220 - 240    |
| 110     | 75 - 80 - 85    | 185     | 57      | 50      | 39      | M 10    | 59          | 7200 - 9000 - 11000         | 230 - 250 - 260    |
| 115     | 80 - 85 - 90    | 188     | 57      | 50      | 39      | M 10    | 59          | 8500 - 10000 - 12000        | 210 - 240 - 270    |
| 120     | 80 - 85 - 90    | 215     | 59      | 52      | 42      | M 10    | 59          | 10500 - 13200 - 14400       | 280 - 300 - 330    |
| 125     | 85 - 90 - 95    | 215     | 59      | 52      | 42      | M 10    | 59          | 11000 - 13000 - 15000       | 300 - 320 - 350    |
| 130     | 90 - 95 - 100   | 215     | 59      | 52      | 42      | M 10    | 59          | 13700 - 15800 - 18200       | 300 - 330 - 360    |
| 140     | 95 - 100 - 105  | 230     | 68      | 60      | 46      | M 12    | 100         | 15000 - 17000 - 20000       | 360 - 400 - 420    |
| 155     | 105 - 110 - 115 | 265     | 72      | 64      | 50      | M 12    | 100         | 20000 - 23000 - 26000       | 390 - 420 - 450    |
| 160     | 110 - 115 - 120 | 265     | 72      | 64      | 50      | M 12    | 100         | 22500 - 25500 - 28600       | 410 - 440 - 470    |
| 165     | 115 - 120 - 125 | 290     | 81      | 71      | 56      | M 16    | 250         | 36000 - 39000 - 44000       | 630 - 660 - 700    |
| 170     | 120 - 125 - 130 | 290     | 81      | 71      | 56      | M 16    | 250         | 31700 - 35800 - 40000       | 600 - 630 - 660    |
| 175     | 125 - 130 - 135 | 300     | 81      | 71      | 56      | M 16    | 250         | 40000 - 44000 - 49000       | 650 - 680 - 720    |
| 180     | 130 - 135 - 140 | 300     | 81      | 71      | 56      | M 16    | 250         | 36800 - 42000 - 46000       | 560 - 620 - 650    |
| 185     | 135 - 140 - 145 | 330     | 96      | 86      | 71      | M 16    | 250         | 55000 - 60000 - 65000       | 815 - 875 - 896    |
| 190     | 140 - 145 - 150 | 330     | 96      | 86      | 71      | M 16    | 250         | 53300 - 58500 - 63500       | 790 - 830 - 870    |
| 195     | 140 - 150 - 155 | 350     | 96      | 86      | 71      | M 16    | 250         | 66000 - 76000 - 82000       | 950 - 1000 - 1100  |
| 200     | 150 - 155 - 160 | 350     | 96      | 86      | 71      | M 16    | 250         | 73700 - 79800 - 85800       | 980 - 1000 - 1070  |
| 220     | 160 - 165 - 170 | 370     | 114     | 104     | 88      | M 16    | 250         | 95000 - 102000 - 110000     | 1200 - 1300 - 1300 |
| 240     | 170 - 180 - 190 | 405     | 121     | 109     | 92      | M 20    | 490         | 120000 - 140000 - 160000    | 1500 - 1600 - 1700 |
| 250     | 180 - 190 - 200 | 405     | 121     | 108     | 92      | M 20    | 490         | 160000 - 180000 - 200000    | 1600 - 1700 - 1800 |
| 260     | 190 - 200 - 210 | 430     | 132     | 120     | 103     | M 20    | 490         | 165000 - 185000 - 204000    | 1760 - 1878 - 2008 |
| 280     | 210 - 220 - 230 | 460     | 147     | 134     | 114     | M 20    | 490         | 216000 - 245000 - 270000    | 2085 - 2220 - 2350 |
| 300     | 230 - 240 - 245 | 485     | 155     | 142     | 122     | M 20    | 490         | 274000 - 296000 - 316000    | 2430 - 2560 - 2630 |
| 320     | 240 - 250 - 260 | 520     | 155     | 142     | 122     | M 20    | 490         | 311000 - 340000 - 375000    | 2640 - 2780 - 2900 |
| 330     | 250 - 260 - 270 | 520     | 155     | 142     | 122     | M 20    | 490         | 352000 - 385000 - 420000    | 2800 - 2900 - 3100 |
| 340     | 250 - 260 - 270 | 570     | 169     | 156     | 134     | M 20    | 490         | 389000 - 422000 - 459000    | 3115 - 3245 - 3400 |
| 350     | 270 - 280 - 285 | 580     | 175     | 162     | 140     | M 20    | 490         | 443000 - 480000 - 500000    | 3275 - 3430 - 3500 |
| 360     | 280 - 290 - 300 | 590     | 175     | 162     | 140     | M 20    | 490         | 462000 - 500000 - 530000    | 3300 - 3460 - 3600 |
| 380     | 290 - 300 - 310 | 645     | 183     | 168     | 144     | M 24    | 840         | 570000 - 610000 - 660000    | 3900 - 4070 - 4260 |
| 390     | 300 - 310 - 320 | 660     | 183     | 168     | 144     | M 24    | 840         | 625000 - 670000 - 720000    | 4170 - 4325 - 4500 |
| 400     | 315 - 320 - 330 | 680     | 183     | 168     | 144     | M 24    | 840         | 671000 - 695000 - 745000    | 4270 - 4340 - 4500 |
| 420     | 330 - 340 - 350 | 690     | 203     | 188     | 164     | M 24    | 840         | 782000 - 841000 - 902000    | 4460 - 5000 - 5200 |
| 440     | 340 - 350 - 360 | 750     | 217     | 202     | 177     | M 24    | 840         | 805000 - 861000 - 920000    | 4760 - 4930 - 5120 |
| 460     | 360 - 370 - 380 | 770     | 217     | 202     | 177     | M 24    | 840         | 1000000 - 1073000 - 1141000 | 5560 - 5820 - 6020 |
| 480     | 380 - 390 - 400 | 800     | 228     | 213     | 188     | M 24    | 840         | 1175000 - 1250000 - 1312000 | 6200 - 6450 - 6580 |
| 500     | 400 - 410 - 420 | 850     | 230     | 213     | 188     | M 27    | 1250        | 1314000 - 1382000 - 1460000 | 6570 - 6740 - 7000 |



## BONFIX 8000 HEAVY

| BONFIX 8000 HEAVY |                 |         |         |         |         |         |          |                             |                    |
|-------------------|-----------------|---------|---------|---------|---------|---------|----------|-----------------------------|--------------------|
| d<br>mm           | ds<br>mm        | D<br>mm | L<br>mm | B<br>mm | l<br>mm | M<br>mm | Ts<br>Nm | T<br>Nm                     | F<br>kN            |
| 185               | 135 - 140 - 145 | 330     | 122     | 112     | 92      | 16      | 250      | 73000 - 79000 - 87000       | 1100 - 1150 - 1200 |
| 195               | 140 - 150 - 155 | 350     | 122     | 112     | 92      | 16      | 250      | 76000 - 89000 - 97000       | 1075 - 1080 - 1235 |
| 200               | 150 - 155 - 160 | 350     | 122     | 112     | 92      | 16      | 250      | 93000 - 105000 - 115000     | 1240 - 1350 - 1435 |
| 220               | 160 - 165 - 170 | 370     | 144     | 134     | 114     | 16      | 250      | 128000 - 137000 - 147000    | 1590 - 1650 - 1720 |
| 240               | 170 - 180 - 190 | 405     | 157     | 144     | 120     | 20      | 490      | 157000 - 178000 - 199000    | 1820 - 1960 - 2080 |
| 260               | 190 - 200 - 210 | 430     | 173     | 160     | 136     | 20      | 490      | 215000 - 242000 - 269000    | 2260 - 2420 - 2580 |
| 280               | 210 - 220 - 230 | 460     | 185     | 172     | 148     | 20      | 490      | 286000 - 322000 - 356000    | 2740 - 2910 - 3090 |
| 300               | 230 - 240 - 250 | 485     | 189     | 176     | 152     | 20      | 490      | 342000 - 377000 - 402000    | 2960 - 3130 - 3215 |
| 320               | 240 - 250 - 260 | 520     | 197     | 184     | 160     | 20      | 490      | 379000 - 416000 - 452000    | 3150 - 3325 - 3470 |
| 340               | 250 - 260 - 270 | 570     | 215     | 200     | 176     | 24      | 840      | 490000 - 531000 - 579000    | 3910 - 4075 - 4275 |
| 350               | 270 - 280 - 290 | 580     | 215     | 200     | 176     | 24      | 840      | 557000 - 605000 - 630000    | 4122 - 4320 - 4415 |
| 360               | 280 - 290 - 300 | 590     | 219     | 204     | 180     | 24      | 840      | 613000 - 664000 - 701000    | 4370 - 4570 - 4670 |
| 380               | 290 - 300 - 310 | 645     | 219     | 204     | 180     | 24      | 840      | 619000 - 669000 - 720000    | 4270 - 4455 - 4645 |
| 390               | 300 - 310 - 320 | 660     | 227     | 212     | 188     | 24      | 840      | 709000 - 763000 - 815000    | 4715 - 4910 - 5090 |
| 400               | 310 - 320 - 330 | 680     | 227     | 212     | 188     | 24      | 840      | 752000 - 789000 - 846000    | 4855 - 4927 - 5125 |
| 420               | 330 - 340 - 350 | 690     | 253     | 238     | 214     | 24      | 840      | 1000000 - 1070000 - 1142000 | 6055 - 6285 - 6515 |
| 440               | 340 - 350 - 360 | 750     | 269     | 252     | 224     | 27      | 1250     | 1059000 - 1132000 - 1205000 | 6230 - 6460 - 6690 |
| 460               | 360 - 370 - 380 | 770     | 269     | 252     | 224     | 27      | 1250     | 1321000 - 1422000 - 1502000 | 7440 - 7700 - 7950 |
| 480               | 380 - 390 - 400 | 800     | 291     | 274     | 246     | 27      | 1250     | 1540000 - 1630000 - 1724000 | 8080 - 8340 - 8600 |
| 500               | 400 - 410 - 420 | 850     | 291     | 274     | 246     | 27      | 1250     | 1752000 - 1842000 - 1943000 | 8750 - 8980 - 9250 |

## BONFIX 8000 HALKAISTU

| BONFIX 8000 HALKAISTU |                 |         |          |         |         |         |            |         |          |                             |                    |
|-----------------------|-----------------|---------|----------|---------|---------|---------|------------|---------|----------|-----------------------------|--------------------|
| d<br>mm               | ds<br>mm        | D<br>mm | B1<br>mm | E<br>mm | F<br>mm | G<br>mm | Viti<br>n° | M<br>mm | Ts<br>Nm | T<br>Nm                     | F<br>kN            |
| 24                    | 19 - 20 - 21    | 50      | 12       | 7       | 2,5     | 36      | 6          | 5       | 5        | 180 - 210 - 250             | 26 - 27 - 29       |
| 30                    | 24 - 25 - 26    | 60      | 13       | 8       | 2,5     | 44      | 6          | 5       | 6        | 310 - 340 - 380             | 26 - 27 - 28       |
| 36                    | 28 - 30 - 31    | 72      | 14       | 9       | 2,5     | 52      | 5          | 6       | 12       | 460 - 590 - 630             | 50 - 54 - 58       |
| 44                    | 32 - 35 - 36    | 80      | 15       | 10      | 2,5     | 61      | 7          | 6       | 12       | 630 - 780 - 860             | 65 - 74 - 77       |
| 50                    | 38 - 40 - 42    | 90      | 16       | 11      | 2,5     | 70      | 8          | 6       | 12       | 940 - 1100 - 1300           | 79 - 85 - 90       |
| 55                    | 42 - 45 - 48    | 100     | 17,5     | 11,5    | 2,5     | 75      | 8          | 6       | 12       | 1200 - 1500 - 1900          | 80 - 90 - 100      |
| 62                    | 48 - 50 - 52    | 110     | 17,5     | 11,5    | 2,5     | 86      | 10         | 6       | 12       | 1800 - 2200 - 2400          | 100 - 110 - 120    |
| 68                    | 50 - 55 - 60    | 115     | 17,5     | 11,5    | 2,5     | 86      | 10         | 6       | 12       | 2000 - 2500 - 3100          | 100 - 110 - 120    |
| 75                    | 55 - 60 - 65    | 138     | 21       | 12,5    | 5       | 100     | 7          | 8       | 30       | 2500 - 3200 - 3900          | 120 - 140 - 150    |
| 80                    | 60 - 65 - 70    | 145     | 21       | 12,5    | 5       | 100     | 7          | 8       | 30       | 3200 - 3900 - 4600          | 120 - 140 - 160    |
| 90                    | 65 - 70 - 75    | 155     | 24,5     | 15      | 5       | 114     | 10         | 8       | 30       | 4700 - 6000 - 7200          | 170 - 190 - 210    |
| 100                   | 70 - 75 - 80    | 170     | 27       | 17      | 5       | 124     | 12         | 8       | 30       | 6900 - 7500 - 9000          | 180 - 220 - 240    |
| 110                   | 75 - 80 - 85    | 185     | 30       | 19,5    | 5       | 136     | 9          | 10      | 59       | 7200 - 9000 - 11000         | 230 - 250 - 260    |
| 125                   | 85 - 90 - 95    | 215     | 31       | 21      | 5       | 160     | 12         | 10      | 59       | 11000 - 13000 - 15000       | 300 - 320 - 350    |
| 140                   | 95 - 100 - 105  | 230     | 35       | 23      | 5       | 175     | 10         | 12      | 100      | 15000 - 17000 - 20000       | 360 - 400 - 420    |
| 155                   | 105 - 110 - 115 | 265     | 37       | 25      | 5       | 192     | 12         | 12      | 100      | 20000 - 23000 - 26000       | 390 - 420 - 450    |
| 165                   | 115 - 120 - 125 | 290     | 40,5     | 28      | 5       | 210     | 8          | 16      | 250      | 36000 - 39000 - 44000       | 630 - 660 - 700    |
| 175                   | 125 - 130 - 135 | 300     | 40,5     | 28      | 5       | 220     | 8          | 16      | 250      | 40000 - 44000 - 49000       | 650 - 680 - 720    |
| 185                   | 135 - 140 - 145 | 330     | 48       | 35,5    | 5       | 236     | 10         | 16      | 250      | 55000 - 60000 - 65000       | 815 - 875 - 896    |
| 195                   | 140 - 150 - 155 | 350     | 48       | 35,5    | 5       | 246     | 12         | 16      | 250      | 66000 - 76000 - 82000       | 950 - 1000 - 1100  |
| 200                   | 150 - 155 - 160 | 350     | 48       | 35,5    | 5       | 246     | 12         | 16      | 250      | 73700 - 79800 - 85800       | 980 - 1000 - 1070  |
| 220                   | 160 - 165 - 170 | 370     | 59,5     | 44      | 7,5     | 270     | 15         | 16      | 250      | 95000 - 102000 - 110000     | 1200 - 1240 - 1300 |
| 240                   | 170 - 180 - 190 | 405     | 62       | 46      | 7,5     | 295     | 12         | 20      | 490      | 120000 - 140000 - 160000    | 1500 - 1600 - 1700 |
| 260                   | 190 - 200 - 210 | 430     | 67,5     | 51,5    | 7,5     | 321     | 14         | 20      | 490      | 165000 - 185000 - 205000    | 1760 - 1878 - 2008 |
| 280                   | 210 - 220 - 230 | 460     | 76,5     | 57      | 8,5     | 346     | 16         | 20      | 490      | 216000 - 245000 - 270000    | 2085 - 2200 - 2350 |
| 300                   | 230 - 240 - 250 | 485     | 79,5     | 61      | 8,5     | 364     | 18         | 20      | 490      | 274000 - 296000 - 316000    | 2430 - 2560 - 2630 |
| 320                   | 240 - 250 - 260 | 520     | 79,5     | 61      | 8,5     | 386     | 20         | 20      | 490      | 310000 - 340000 - 375000    | 2640 - 2780 - 2900 |
| 340                   | 250 - 260 - 270 | 570     | 86,5     | 67      | 8,5     | 408     | 24         | 20      | 490      | 390000 - 422000 - 459000    | 3115 - 3245 - 3400 |
| 350                   | 270 - 280 - 285 | 570     | 89,5     | 70      | 8,5     | 432     | 24         | 20      | 490      | 443000 - 480000 - 500000    | 3275 - 3430 - 3500 |
| 360                   | 280 - 290 - 300 | 590     | 89,5     | 70      | 8,5     | 432     | 24         | 20      | 490      | 462000 - 500000 - 530000    | 3300 - 3460 - 3600 |
| 380                   | 290 - 300 - 310 | 645     | 92,5     | 72      | 8,5     | 458     | 20         | 24      | 840      | 570000 - 610000 - 660000    | 3900 - 4070 - 4260 |
| 390                   | 300 - 310 - 320 | 660     | 92,5     | 72      | 8,5     | 468     | 21         | 24      | 840      | 625000 - 670000 - 720000    | 4170 - 4325 - 4500 |
| 400                   | 315 - 320 - 330 | 680     | 92,5     | 72      | 8,5     | 480     | 21         | 24      | 840      | 671000 - 695000 - 745000    | 4270 - 4340 - 4500 |
| 420                   | 340 - 350 - 360 | 690     | 106,5    | 84,5    | 10      | 504     | 24         | 24      | 840      | 782000 - 841000 - 902000    | 4460 - 5000 - 5200 |
| 440                   | 340 - 350 - 360 | 750     | 113,5    | 91,5    | 10      | 527     | 24         | 24      | 840      | 805000 - 861000 - 920000    | 4760 - 4930 - 5120 |
| 460                   | 360 - 370 - 380 | 770     | 113,5    | 91      | 10      | 547     | 28         | 24      | 840      | 1000000 - 1073000 - 1141000 | 5560 - 5820 - 6020 |
| 480                   | 380 - 390 - 400 | 800     | 119      | 96,5    | 10      | 570     | 30         | 24      | 840      | 1175000 - 1250000 - 1312000 | 6200 - 6450 - 6580 |
| 500                   | 400 - 410 - 420 | 850     | 119      | 96,5    | 10      | 590     | 24         | 27      | 1250     | 1314000 - 1382000 - 1460000 | 6570 - 6740 - 7000 |



# BONFIX 1000

Ohutseinämäisille navoille - keskittävä



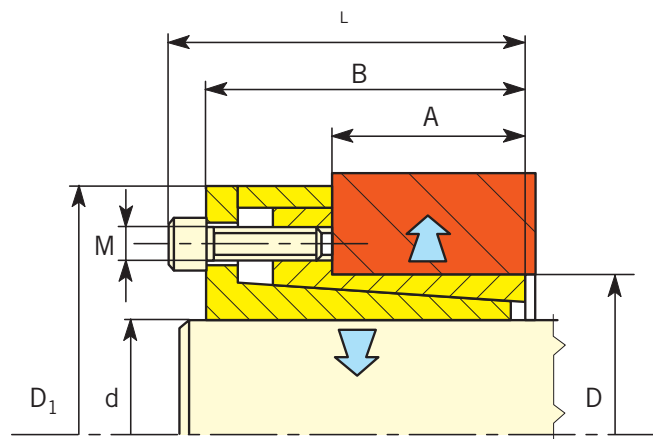
**BONFIX 1000**

| d<br>mm | D<br>mm | D <sub>1</sub><br>mm | A<br>mm | B<br>mm | L<br>mm | M<br>mm | T <sub>s</sub><br>Nm | T<br>Nm | F<br>kN | P<br>N/<br>mm <sup>2</sup> |
|---------|---------|----------------------|---------|---------|---------|---------|----------------------|---------|---------|----------------------------|
| 6       | 14      | 25                   | 10      | 21      | 24      | M 3     | 2,6                  | 11      | 3,8     | 68                         |
| 8       | 15      | 27                   | 11,5    | 25      | 29      | M 4     | 5,6                  | 26      | 6,5     | 98                         |
| 9       | 16      | 28                   | 14      | 26      | 30      | M 4     | 5,6                  | 37      | 8       | 98                         |
| 9,525   | 16      | 28                   | 14      | 26      | 30      | M 4     | 5,6                  | 39      | 8       | 98                         |
| 10      | 16      | 29                   | 14      | 26      | 30      | M 4     | 5,6                  | 42      | 8       | 98                         |
| 11      | 18      | 32                   | 13,5    | 26      | 30      | M 4     | 5,6                  | 50      | 9       | 100                        |
| 12      | 18      | 32                   | 13,5    | 26      | 30      | M 4     | 5,6                  | 55      | 9       | 100                        |
| 14      | 23      | 38                   | 14      | 26      | 30      | M 4     | 5,6                  | 100     | 14      | 120                        |
| 15      | 24      | 44                   | 16      | 36      | 42      | M 6     | 15                   | 145     | 19      | 130                        |
| 16      | 24      | 44                   | 16      | 36      | 42      | M 6     | 15                   | 155     | 19      | 130                        |
| 17      | 25      | 45                   | 16      | 36      | 42      | M 6     | 15                   | 162     | 19      | 125                        |
| 17      | 26      | 47                   | 18      | 38      | 44      | M 6     | 17                   | 180     | 23      | 122                        |
| 18      | 26      | 47                   | 18      | 38      | 44      | M 6     | 17                   | 200     | 23      | 120                        |
| 19      | 27      | 48                   | 18      | 38      | 44      | M 6     | 17                   | 210     | 23      | 120                        |
| 20      | 28      | 49                   | 18      | 38      | 44      | M 6     | 17                   | 220     | 23      | 120                        |
| 22      | 32      | 54                   | 25      | 45      | 51      | M 6     | 17                   | 250     | 23      | 70                         |
| 24      | 34      | 56                   | 25      | 45      | 51      | M 6     | 17                   | 270     | 23      | 70                         |
| 25      | 34      | 56                   | 25      | 45      | 51      | M 6     | 17                   | 280     | 23      | 70                         |
| 28      | 39      | 61                   | 25      | 45      | 51      | M 6     | 17                   | 480     | 34      | 90                         |
| 30      | 41      | 62                   | 25      | 45      | 51      | M 6     | 17                   | 510     | 34      | 84                         |
| 32      | 43      | 65                   | 25      | 45      | 51      | M 6     | 17                   | 730     | 46      | 115                        |
| 35      | 47      | 69                   | 30      | 50      | 56      | M 6     | 17                   | 800     | 46      | 81                         |
| 38      | 50      | 72                   | 30      | 50      | 56      | M 6     | 17                   | 860     | 46      | 76                         |
| 40      | 53      | 75                   | 30      | 50      | 56      | M 6     | 17                   | 900     | 46      | 72                         |
| 42      | 55      | 78                   | 32      | 57      | 65      | M 8     | 41                   | 1800    | 84      | 125                        |
| 45      | 59      | 85                   | 40      | 65      | 73      | M 8     | 41                   | 1900    | 84      | 89                         |
| 48      | 62      | 87                   | 45      | 70      | 78      | M 8     | 41                   | 2000    | 84      | 75                         |
| 50      | 65      | 92                   | 45      | 70      | 78      | M 8     | 41                   | 2600    | 105     | 90                         |
| 55      | 71      | 98                   | 50      | 75      | 83      | M 8     | 41                   | 2900    | 105     | 70                         |
| 60      | 77      | 104                  | 50      | 75      | 83      | M 8     | 41                   | 3100    | 105     | 70                         |

**BONFIX 1000**

| d<br>mm | D<br>mm | D <sub>1</sub><br>mm | A<br>mm | B<br>mm | L<br>mm | M<br>mm | T <sub>s</sub><br>Nm | T<br>Nm | F<br>kN | P<br>N/<br>mm <sup>2</sup> |
|---------|---------|----------------------|---------|---------|---------|---------|----------------------|---------|---------|----------------------------|
| 65      | 84      | 111                  | 50      | 75      | 83      | M 8     | 41                   | 3400    | 105     | 60                         |
| 70      | 90      | 119                  | 60      | 91      | 101     | M 10    | 83                   | 5800    | 170     | 80                         |
| 75      | 95      | 126                  | 60      | 91      | 101     | M 10    | 83                   | 6200    | 170     | 70                         |
| 80      | 100     | 131                  | 65      | 96      | 106     | M 10    | 83                   | 8000    | 200     | 80                         |
| 85      | 106     | 137                  | 65      | 96      | 106     | M 10    | 83                   | 8500    | 200     | 70                         |
| 90      | 112     | 143                  | 65      | 96      | 106     | M 10    | 83                   | 11200   | 250     | 90                         |
| 95      | 120     | 153                  | 65      | 96      | 106     | M 10    | 83                   | 11800   | 250     | 80                         |
| 100     | 125     | 162                  | 65      | 102     | 114     | M 12    | 145                  | 14600   | 300     | 95                         |
| 110     | 140     | 180                  | 90      | 128     | 140     | M 12    | 145                  | 16000   | 300     | 61                         |
| 120     | 155     | 198                  | 90      | 128     | 140     | M 12    | 145                  | 17400   | 300     | 55                         |
| 130     | 165     | 208                  | 90      | 128     | 140     | M 12    | 145                  | 25000   | 389     | 69                         |

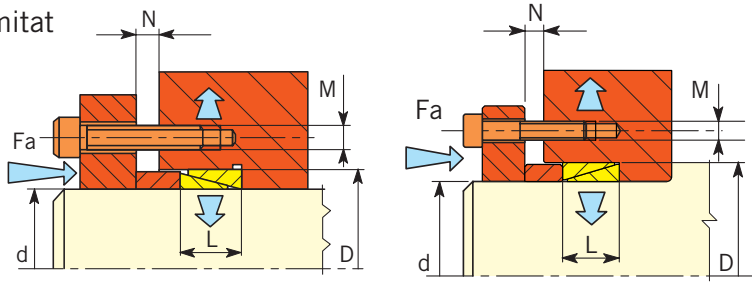
BONFIX 1000:n akselikoot 6 - 14 mm voivat siirtää täyden vääntömomenttiarvonsa ainoastaan silloin, kun kartiopintoihin ja ruuveihin on lisätty öljyä, joka sisältää molybdeenisulfiittia (M<sub>0</sub>S<sub>2</sub>).





# BONFIX 3000

Pienet säteismitat  
Ei keskittävä



## BONFIX 3000

| d  | D  | L   | N |   |   |   | T    | F   | P                 | F <sub>A</sub> |
|----|----|-----|---|---|---|---|------|-----|-------------------|----------------|
| mm | mm | mm  | 1 | 2 | 3 | 4 | Nm   | kN  | N/mm <sup>2</sup> | kN             |
| 6  | 9  | 4,5 | 3 | 3 | 3 | 4 | 2    | 0,8 | 75                | 4              |
| 7  | 10 | 4,5 | 3 | 3 | 3 | 4 | 4    | 1   | 84                | 5              |
| 8  | 11 | 4,5 | 3 | 3 | 3 | 4 | 5    | 1   | 90                | 6              |
| 9  | 12 | 4,5 | 3 | 3 | 3 | 4 | 8    | 1,6 | 95                | 15             |
| 10 | 13 | 4,5 | 3 | 3 | 3 | 4 | 10   | 2   | 100               | 16             |
| 12 | 15 | 4,5 | 3 | 3 | 3 | 4 | 11   | 2   | 90                | 16             |
| 13 | 16 | 4,5 | 3 | 3 | 3 | 4 | 13   | 2,1 | 105               | 16             |
| 14 | 18 | 6,3 | 3 | 4 | 4 | 5 | 22   | 3   | 90                | 26             |
| 15 | 19 | 6,3 | 3 | 4 | 4 | 5 | 25   | 3   | 90                | 27             |
| 16 | 20 | 6,3 | 3 | 4 | 4 | 5 | 26   | 3   | 90                | 27             |
| 17 | 21 | 6,3 | 3 | 4 | 4 | 5 | 30   | 3   | 90                | 27             |
| 18 | 22 | 6,3 | 3 | 4 | 4 | 5 | 33   | 3   | 90                | 33             |
| 19 | 24 | 6,3 | 3 | 4 | 4 | 5 | 40   | 4   | 90                | 33             |
| 20 | 25 | 6,3 | 3 | 4 | 4 | 5 | 44   | 4   | 90                | 33             |
| 22 | 26 | 6,3 | 3 | 4 | 4 | 5 | 50   | 4   | 90                | 34             |
| 24 | 28 | 6,3 | 3 | 4 | 4 | 5 | 68   | 6   | 100               | 34             |
| 25 | 30 | 6,3 | 3 | 4 | 4 | 5 | 75   | 6   | 100               | 37             |
| 28 | 32 | 6,3 | 3 | 4 | 4 | 5 | 90   | 6   | 100               | 40             |
| 30 | 35 | 6,3 | 3 | 4 | 4 | 5 | 100  | 7   | 100               | 40             |
| 32 | 36 | 6,3 | 3 | 4 | 4 | 5 | 120  | 7   | 100               | 44             |
| 35 | 40 | 7   | 3 | 4 | 4 | 5 | 160  | 9   | 100               | 54             |
| 36 | 42 | 7   | 4 | 5 | 5 | 6 | 170  | 9,5 | 100               | 57             |
| 38 | 44 | 7   | 4 | 5 | 5 | 6 | 190  | 10  | 100               | 60             |
| 40 | 45 | 8   | 4 | 5 | 5 | 6 | 230  | 11  | 100               | 70             |
| 42 | 48 | 8   | 4 | 5 | 5 | 6 | 260  | 12  | 100               | 75             |
| 45 | 52 | 10  | 4 | 5 | 5 | 6 | 390  | 17  | 100               | 110            |
| 48 | 55 | 10  | 4 | 5 | 5 | 6 | 430  | 18  | 100               | 110            |
| 50 | 57 | 10  | 4 | 5 | 5 | 6 | 470  | 19  | 100               | 110            |
| 55 | 62 | 10  | 4 | 5 | 5 | 6 | 580  | 21  | 100               | 120            |
| 56 | 64 | 12  | 4 | 5 | 5 | 6 | 740  | 24  | 100               | 150            |
| 60 | 68 | 12  | 4 | 5 | 6 | 7 | 840  | 28  | 100               | 160            |
| 63 | 71 | 12  | 4 | 5 | 6 | 7 | 920  | 29  | 100               | 170            |
| 65 | 73 | 12  | 4 | 5 | 6 | 7 | 1000 | 30  | 100               | 170            |
| 70 | 79 | 14  | 4 | 5 | 6 | 7 | 1300 | 38  | 100               | 210            |

## BONFIX 3000

| d   | D   | L  | N  |    |    |    | T      | F   | P                 | F <sub>A</sub> |
|-----|-----|----|----|----|----|----|--------|-----|-------------------|----------------|
| mm  | mm  | mm | 1  | 2  | 3  | 4  | Nm     | kN  | N/mm <sup>2</sup> | kN             |
| 71  | 80  | 14 | 4  | 5  | 6  | 7  | 1400   | 39  | 100               | 220            |
| 75  | 84  | 14 | 4  | 5  | 6  | 7  | 1500   | 41  | 100               | 230            |
| 80  | 91  | 17 | 5  | 6  | 7  | 8  | 2100   | 54  | 100               | 300            |
| 85  | 96  | 17 | 5  | 6  | 7  | 8  | 2400   | 57  | 100               | 320            |
| 90  | 101 | 17 | 5  | 6  | 7  | 8  | 2700   | 61  | 100               | 330            |
| 95  | 106 | 17 | 5  | 6  | 8  | 9  | 3000   | 64  | 100               | 340            |
| 100 | 114 | 21 | 5  | 6  | 8  | 9  | 4200   | 84  | 100               | 460            |
| 110 | 124 | 21 | 5  | 6  | 8  | 9  | 4700   | 86  | 90                | 475            |
| 120 | 134 | 21 | 5  | 6  | 8  | 9  | 5100   | 88  | 90                | 475            |
| 130 | 148 | 28 | 6  | 7  | 9  | 11 | 8100   | 125 | 90                | 700            |
| 140 | 158 | 28 | 6  | 7  | 9  | 11 | 9400   | 135 | 90                | 740            |
| 150 | 168 | 28 | 6  | 7  | 9  | 11 | 11000  | 145 | 90                | 790            |
| 160 | 178 | 28 | 6  | 7  | 9  | 11 | 14500  | 180 | 105               | 950            |
| 170 | 191 | 33 | 7  | 8  | 10 | 12 | 19500  | 228 | 105               | 1180           |
| 180 | 201 | 33 | 7  | 8  | 10 | 12 | 21200  | 235 | 105               | 1200           |
| 190 | 211 | 33 | 7  | 9  | 10 | 12 | 24100  | 250 | 110               | 1300           |
| 200 | 224 | 38 | 7  | 9  | 11 | 13 | 31000  | 310 | 105               | 1600           |
| 210 | 234 | 38 | 7  | 9  | 11 | 13 | 35000  | 332 | 109               | 1532           |
| 220 | 244 | 38 | 7  | 9  | 11 | 13 | 38000  | 344 | 108               | 1588           |
| 240 | 267 | 43 | 7  | 9  | 12 | 14 | 47000  | 391 | 99                | 1800           |
| 250 | 280 | 48 | 8  | 10 | 13 | 16 | 52000  | 415 | 90                | 1912           |
| 260 | 290 | 48 | 8  | 10 | 13 | 16 | 56500  | 435 | 90                | 1998           |
| 280 | 313 | 53 | 9  | 11 | 14 | 17 | 72500  | 518 | 90                | 2380           |
| 300 | 333 | 53 | 9  | 11 | 14 | 17 | 83000  | 553 | 90                | 2543           |
| 320 | 360 | 65 | 10 | 15 | 20 | 25 | 114000 | 719 | 89                | 3275           |
| 340 | 380 | 65 | 10 | 15 | 20 | 25 | 128500 | 778 | 89                | 3474           |
| 360 | 400 | 65 | 10 | 15 | 20 | 25 | 144000 | 800 | 87                | 3575           |
| 380 | 420 | 65 | 10 | 15 | 20 | 25 | 160000 | 845 | 90                | 3871           |
| 400 | 440 | 65 | 10 | 15 | 20 | 25 | 178000 | 890 | 91                | 4091           |
| 420 | 460 | 65 | 10 | 15 | 20 | 25 | 196000 | 933 | 91                | 4290           |
| 440 | 480 | 65 | 10 | 15 | 20 | 25 | 215000 | 977 | 92                | 4492           |

Sarjaan asennettaessa

2 BONFIX 3000 T2 = T x 1,6  
3 BONFIX 3000 T3 = T x 1,9  
4 BONFIX 3000 T4 = T x 2,1

FA-esikuormitusvoima syntyy lukitusruuvien kiristymisestä lukituslaippaan, kun lukitusruuvit kiristetään momentilla TS. Lukitusruuvien lukumäärän (n) ja koon pitää olla sellaiset, että yhtälö  $n \times F_s = F_A$  on voimassa.

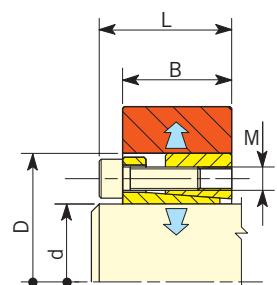
| Ruuvien koko | T <sub>s</sub> Nm | F <sub>s</sub> kN |
|--------------|-------------------|-------------------|
| M 6          | 10                | 9                 |
| M 8          | 26                | 16                |
| M 10         | 49                | 26                |
| M 12         | 85                | 38                |
| M 14         | 135               | 52                |



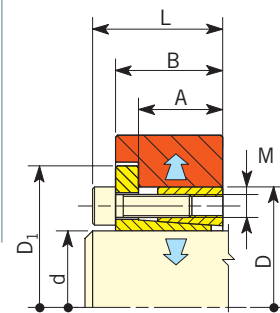
# BONFIX 4100 - BONFIX 4600

| BONFIX 4100 - BONFIX 4600 |         |                      |         |         |         |         | BONFIX 4100          |         |         |                        | BONFIX 4600          |         |         |                        |
|---------------------------|---------|----------------------|---------|---------|---------|---------|----------------------|---------|---------|------------------------|----------------------|---------|---------|------------------------|
| d<br>mm                   | D<br>mm | D <sub>1</sub><br>mm | A<br>mm | B<br>mm | L<br>mm | M<br>mm | T <sub>s</sub><br>Nm | T<br>Nm | F<br>kN | P<br>N/mm <sup>2</sup> | T <sub>s</sub><br>Nm | T<br>Nm | F<br>kN | P<br>N/mm <sup>2</sup> |
| 18                        | 47      | 53                   | 22      | 28      | 34      | M 6     | 14                   | 370     | 41      | 140                    | 17                   | 290     | 32      | 100                    |
| 19                        | 47      | 53                   | 22      | 28      | 34      | M 6     | 14                   | 390     | 41      | 140                    | 17                   | 300     | 32      | 100                    |
| 20                        | 47      | 53                   | 22      | 28      | 34      | M 6     | 14                   | 410     | 41      | 140                    | 17                   | 320     | 32      | 100                    |
| 22                        | 47      | 53                   | 22      | 28      | 34      | M 6     | 14                   | 450     | 41      | 140                    | 17                   | 350     | 32      | 100                    |
| 24                        | 50      | 56                   | 22      | 28      | 34      | M 6     | 14                   | 490     | 41      | 130                    | 17                   | 390     | 32      | 100                    |
| 25                        | 50      | 56                   | 22      | 28      | 34      | M 6     | 14                   | 510     | 41      | 130                    | 17                   | 400     | 32      | 100                    |
| 28                        | 55      | 61,4                 | 22      | 28      | 34      | M 6     | 14                   | 570     | 41      | 120                    | 17                   | 450     | 32      | 90                     |
| 30                        | 55      | 61,4                 | 22      | 28      | 34      | M 6     | 14                   | 610     | 41      | 120                    | 17                   | 490     | 32      | 90                     |
| 32                        | 60      | 67                   | 22      | 28      | 34      | M 6     | 14                   | 880     | 55      | 145                    | 17                   | 700     | 43      | 110                    |
| 35                        | 60      | 67                   | 22      | 28      | 34      | M 6     | 14                   | 960     | 55      | 145                    | 17                   | 760     | 43      | 110                    |
| 38                        | 65      | 72                   | 22      | 28      | 34      | M 6     | 14                   | 1000    | 55      | 135                    | 17                   | 820     | 43      | 100                    |
| 40                        | 65      | 72                   | 22      | 28      | 34      | M 6     | 14                   | 1100    | 55      | 135                    | 17                   | 870     | 43      | 100                    |
| 42                        | 75      | 84                   | 25      | 33      | 41      | M 8     | 35                   | 2200    | 105     | 190                    | 41                   | 1700    | 80      | 140                    |
| 45                        | 75      | 84                   | 25      | 33      | 41      | M 8     | 35                   | 2400    | 105     | 190                    | 41                   | 1800    | 80      | 140                    |
| 48                        | 80      | 89                   | 24      | 33,5    | 41      | M 8     | 35                   | 2500    | 105     | 175                    | 41                   | 1900    | 80      | 130                    |
| 50                        | 80      | 89                   | 24      | 33,5    | 41      | M 8     | 35                   | 2600    | 105     | 175                    | 41                   | 2000    | 80      | 130                    |
| 55                        | 85      | 94                   | 24      | 33,5    | 41      | M 8     | 35                   | 2900    | 105     | 165                    | 41                   | 2200    | 80      | 120                    |
| 60                        | 90      | 99                   | 24      | 33,5    | 41      | M 8     | 35                   | 3100    | 105     | 155                    | 41                   | 2400    | 80      | 120                    |
| 65                        | 95      | 104                  | 24      | 33,5    | 41      | M 8     | 35                   | 3400    | 105     | 150                    | 41                   | 2600    | 80      | 110                    |
| 70                        | 110     | 119                  | 29      | 40      | 50      | M 10    | 70                   | 6000    | 170     | 175                    | 83                   | 4600    | 130     | 130                    |
| 75                        | 115     | 124                  | 29      | 40      | 50      | M 10    | 70                   | 6400    | 170     | 170                    | 83                   | 5000    | 130     | 130                    |
| 80                        | 120     | 129                  | 29      | 40      | 50      | M 10    | 70                   | 6800    | 170     | 160                    | 83                   | 5300    | 130     | 120                    |
| 85                        | 125     | 134                  | 29      | 40      | 50      | M 10    | 70                   | 9000    | 210     | 190                    | 83                   | 7000    | 160     | 150                    |
| 90                        | 130     | 139                  | 29      | 40      | 50      | M 10    | 70                   | 9600    | 210     | 185                    | 83                   | 7400    | 160     | 140                    |
| 95                        | 135     | 144                  | 29      | 40      | 50      | M 10    | 70                   | 10200   | 210     | 185                    | 83                   | 7800    | 160     | 130                    |
| 100                       | 145     | 154                  | 31      | 44      | 56      | M 12    | 115                  | 12000   | 235     | 170                    | 145                  | 9700    | 200     | 140                    |
| 110                       | 155     | 164                  | 31      | 44      | 56      | M 12    | 115                  | 13000   | 260     | 160                    | 145                  | 10700   | 200     | 130                    |
| 120                       | 165     | 174                  | 31      | 44      | 56      | M 12    | 115                  | 16000   | 270     | 165                    | 145                  | 13100   | 220     | 150                    |
| 130                       | 180     | 189                  | 39      | 52      | 64      | M 12    | 115                  | 23000   | 350     | 155                    | 145                  | 19000   | 290     | 130                    |
| 140                       | 190     | 199                  | 39      | 54      | 68      | M 14    | 185                  | 25000   | 360     | 150                    | 230                  | 20500   | 300     | 140                    |
| 150                       | 200     | 209                  | 39      | 54      | 68      | M 14    | 185                  | 30000   | 400     | 155                    | 230                  | 24500   | 330     | 130                    |
| 160                       | 210     | 219                  | 39      | 54      | 68      | M 14    | 185                  | 38800   | 480     | 170                    | 230                  | 31300   | 390     | 150                    |
| 170                       | 225     | 234                  | 49      | 64      | 78      | M 14    | 185                  | 41300   | 480     | 130                    | 230                  | 33200   | 390     | 110                    |
| 180                       | 235     | 244                  | 49      | 64      | 78      | M 14    | 185                  | 43700   | 480     | 125                    | 230                  | 35000   | 390     | 100                    |
| 190                       | 250     | 259                  | 49      | 64      | 78      | M 14    | 185                  | 57700   | 600     | 145                    | 230                  | 46500   | 500     | 120                    |
| 200                       | 260     | 269                  | 49      | 64      | 78      | M 14    | 185                  | 60700   | 600     | 140                    | 230                  | 49000   | 500     | 110                    |
| 220                       | 285     | 294                  | 57      | 72      | 88      | M 16    | 290                  | 78100   | 710     | 132                    | 360                  | 57100   | 519     | 97                     |
| 240                       | 305     | 314                  | 57      | 72      | 88      | M 16    | 290                  | 106500  | 848     | 154                    | 360                  | 77800   | 649     | 113                    |
| 260                       | 325     | 334                  | 57      | 72      | 88      | M 16    | 290                  | 138500  | 1017    | 174                    | 360                  | 101200  | 778     | 127                    |
| 280                       | 355     | 364                  | 66      | 84      | 102     | M 18    | 400                  | 160300  | 1094    | 143                    | 480                  | 113300  | 808     | 101                    |
| 300                       | 375     | 384                  | 66      | 84      | 102     | M 18    | 400                  | 193200  | 1230    | 152                    | 480                  | 136500  | 910     | 107                    |
| 320                       | 405     | 414                  | 81      | 101     | 121     | M 20    | 580                  | 272700  | 1627    | 151                    | 690                  | 191000  | 1193    | 106                    |
| 340                       | 425     | 434                  | 81      | 101     | 121     | M 20    | 580                  | 338000  | 1899    | 168                    | 690                  | 237000  | 1393    | 118                    |
| 360                       | 455     | 464                  | 93      | 115     | 137     | M 22    | 780                  | 375700  | 1994    | 142                    | 930                  | 264000  | 1465    | 99                     |
| 380                       | 475     | 484                  | 93      | 115     | 137     | M 22    | 780                  | 462700  | 2326    | 158                    | 930                  | 325000  | 1709    | 111                    |
| 400                       | 495     | 504                  | 93      | 115     | 137     | M 22    | 780                  | 487000  | 2326    | 152                    | 930                  | 342000  | 1709    | 107                    |

BONFIX 4100



BONFIX 4600



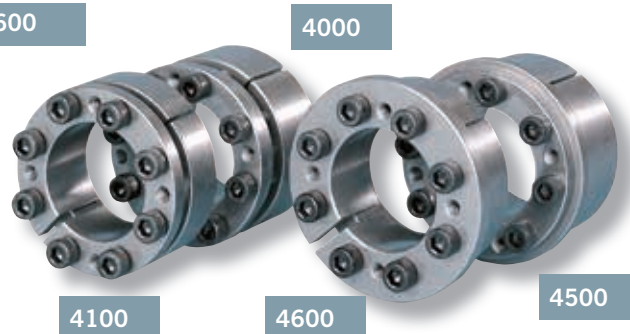
# BONFIX 4000 - BONFIX 4500

## BONFIX 4000 - BONFIX 4100

Suuri momentinsiirtokyky  
Erittäin hyvin keskittävä

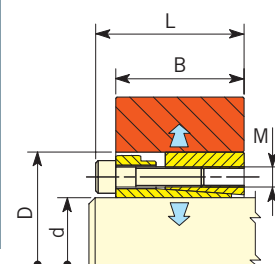
## BONFIX 4500 - BONFIX 4600

Varmistusrenkas  
aksaalisiirtymälle

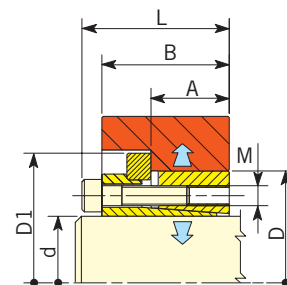


| BONFIX 4000 - BONFIX 4500 |         |                      |         |         |         |         | BONFIX 4000          |         |         |                        | BONFIX 4500          |         |         |                        |
|---------------------------|---------|----------------------|---------|---------|---------|---------|----------------------|---------|---------|------------------------|----------------------|---------|---------|------------------------|
| d<br>mm                   | D<br>mm | D <sub>1</sub><br>mm | A<br>mm | B<br>mm | L<br>mm | M<br>mm | T <sub>s</sub><br>Nm | T<br>Nm | F<br>kN | P<br>N/mm <sup>2</sup> | T <sub>s</sub><br>Nm | T<br>Nm | F<br>kN | P<br>N/mm <sup>2</sup> |
| 20                        | 47      | 53                   | 31      | 42      | 48      | M 6     | 17                   | 530     | 52      | 110                    | 17                   | 320     | 33      | 70                     |
| 22                        | 47      | 53                   | 31      | 42      | 48      | M 6     | 17                   | 580     | 52      | 110                    | 17                   | 360     | 33      | 70                     |
| 24                        | 50      | 56                   | 31      | 42      | 48      | M 6     | 17                   | 630     | 52      | 100                    | 17                   | 390     | 33      | 70                     |
| 25                        | 50      | 56                   | 31      | 42      | 48      | M 6     | 17                   | 660     | 52      | 100                    | 17                   | 400     | 33      | 70                     |
| 28                        | 55      | 61                   | 31      | 42      | 48      | M 6     | 17                   | 740     | 52      | 100                    | 17                   | 450     | 33      | 60                     |
| 30                        | 55      | 61                   | 31      | 42      | 48      | M 6     | 17                   | 790     | 52      | 100                    | 17                   | 490     | 33      | 60                     |
| 32                        | 60      | 66                   | 31      | 42      | 48      | M 6     | 17                   | 1150    | 70      | 120                    | 17                   | 690     | 43      | 70                     |
| 35                        | 60      | 66                   | 31      | 42      | 48      | M 6     | 17                   | 1300    | 70      | 120                    | 17                   | 750     | 43      | 70                     |
| 38                        | 65      | 71                   | 31      | 42      | 48      | M 6     | 17                   | 1300    | 70      | 110                    | 17                   | 820     | 43      | 70                     |
| 40                        | 65      | 71                   | 31      | 42      | 48      | M 6     | 17                   | 1400    | 70      | 110                    | 17                   | 860     | 43      | 70                     |
| 42                        | 75      | 81                   | 35      | 51      | 59      | M 8     | 41                   | 2000    | 100     | 120                    | 41                   | 1300    | 60      | 70                     |
| 45                        | 75      | 81                   | 35      | 51      | 59      | M 8     | 41                   | 2200    | 100     | 120                    | 41                   | 1400    | 60      | 70                     |
| 48                        | 80      | 86                   | 35      | 51      | 59      | M 8     | 41                   | 3200    | 130     | 150                    | 41                   | 1900    | 80      | 90                     |
| 50                        | 80      | 86                   | 35      | 51      | 59      | M 8     | 41                   | 3300    | 130     | 150                    | 41                   | 2000    | 80      | 90                     |
| 55                        | 85      | 91                   | 35      | 51      | 59      | M 8     | 41                   | 3600    | 130     | 140                    | 41                   | 2200    | 80      | 90                     |
| 60                        | 90      | 96                   | 35      | 51      | 59      | M 8     | 41                   | 3900    | 130     | 130                    | 41                   | 2400    | 80      | 80                     |
| 65                        | 95      | 101                  | 35      | 51      | 59      | M 8     | 41                   | 4300    | 130     | 120                    | 41                   | 2600    | 80      | 70                     |
| 70                        | 110     | 119                  | 45      | 60      | 70      | M 10    | 83                   | 7500    | 210     | 130                    | 83                   | 4600    | 130     | 80                     |
| 75                        | 115     | 124                  | 45      | 60      | 70      | M 10    | 83                   | 8000    | 210     | 130                    | 83                   | 5000    | 130     | 80                     |
| 80                        | 120     | 129                  | 45      | 60      | 70      | M 10    | 83                   | 8500    | 210     | 120                    | 83                   | 5200    | 130     | 70                     |
| 85                        | 125     | 134                  | 45      | 60      | 70      | M 10    | 83                   | 11400   | 270     | 150                    | 83                   | 7000    | 170     | 90                     |
| 90                        | 130     | 139                  | 45      | 60      | 70      | M 10    | 83                   | 12000   | 270     | 140                    | 83                   | 7400    | 170     | 80                     |
| 95                        | 135     | 144                  | 45      | 60      | 70      | M 10    | 83                   | 12600   | 280     | 135                    | 83                   | 7800    | 170     | 80                     |
| 100                       | 145     | 155                  | 52      | 68      | 80      | M 12    | 145                  | 15000   | 300     | 130                    | 145                  | 9800    | 190     | 80                     |
| 110                       | 155     | 165                  | 52      | 68      | 80      | M 12    | 145                  | 16500   | 300     | 120                    | 145                  | 10700   | 190     | 70                     |
| 120                       | 165     | 175                  | 52      | 68      | 80      | M 12    | 145                  | 22500   | 370     | 140                    | 145                  | 14600   | 240     | 90                     |
| 130                       | 180     | 188                  | 52      | 68      | 80      | M 12    | 145                  | 29000   | 450     | 150                    | 145                  | 19000   | 300     | 100                    |
| 140                       | 190     | 199                  | 58      | 76      | 90      | M 14    | 210                  | 32000   | 460     | 130                    | 230                  | 23000   | 330     | 90                     |
| 150                       | 200     | 209                  | 58      | 76      | 90      | M 14    | 210                  | 41000   | 550     | 150                    | 230                  | 30000   | 400     | 100                    |
| 160                       | 210     | 219                  | 58      | 76      | 90      | M 14    | 210                  | 44000   | 550     | 140                    | 230                  | 32000   | 400     | 100                    |
| 170                       | 225     | 234                  | 58      | 76      | 90      | M 14    | 210                  | 54500   | 640     | 160                    | 230                  | 39000   | 460     | 110                    |
| 180                       | 235     | 244                  | 58      | 76      | 90      | M 14    | 210                  | 57500   | 640     | 150                    | 230                  | 41000   | 460     | 100                    |
| 190                       | 250     | 259                  | 58      | 76      | 90      | M 14    | 210                  | 65000   | 689     | 146                    | 230                  | 46400   | 488     | 104                    |
| 200                       | 260     | 269                  | 58      | 76      | 90      | M 14    | 210                  | 68000   | 689     | 141                    | 230                  | 48800   | 488     | 100                    |

### BONFIX 4000



### BONFIX 4500



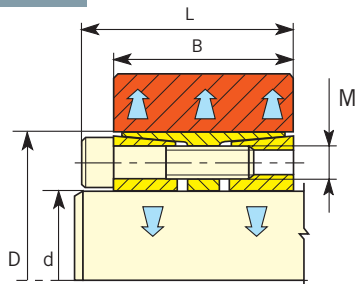


# BONFIX 9600 - BONFIX 9500 - 9000 - 9700

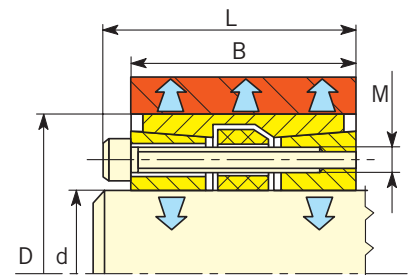
BONFIX 9500 - 9600  
BONFIX 9000 - 9700

Erittäin suuri  
momentinsiirtokyky  
Itsekeskittävä

BONFIX 9600  
BONFIX 9500



BONFIX 9000

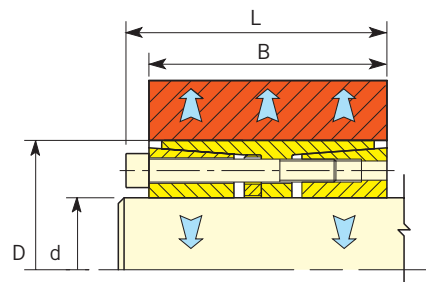


## BONFIX 9600

|         |         |         |         |         | Raskas käyttö        |         |         |                        | Kevyt käyttö*        |         |         |                        |
|---------|---------|---------|---------|---------|----------------------|---------|---------|------------------------|----------------------|---------|---------|------------------------|
| d<br>mm | D<br>mm | M<br>mm | B<br>mm | L<br>mm | T <sub>s</sub><br>Nm | T<br>Nm | F<br>kN | P<br>N/mm <sup>2</sup> | T <sub>s</sub><br>Nm | T<br>Nm | F<br>kN | P<br>N/mm <sup>2</sup> |
| 70      | 110     | M10     | 62      | 72      | 83                   | 7270    | 208     | 125                    | 49                   | 4250    | 121     | 74                     |
| 75      | 115     | M10     | 62      | 72      | 83                   | 7780    | 207     | 120                    | 49                   | 4590    | 122     | 71                     |
| 80      | 120     | M10     | 62      | 72      | 83                   | 10350   | 259     | 143                    | 49                   | 6100    | 153     | 85                     |
| 85      | 125     | M10     | 62      | 72      | 83                   | 11000   | 259     | 138                    | 49                   | 6500    | 153     | 81                     |
| 90      | 130     | M10     | 62      | 72      | 83                   | 12800   | 284     | 146                    | 49                   | 7580    | 168     | 86                     |
| 95      | 135     | M10     | 62      | 72      | 83                   | 13500   | 284     | 140                    | 49                   | 8000    | 168     | 83                     |
| 100     | 145     | M12     | 72      | 84      | 145                  | 19400   | 388     | 148                    | 69                   | 9200    | 184     | 71                     |
| 110     | 155     | M12     | 72      | 84      | 145                  | 21400   | 389     | 139                    | 69                   | 10100   | 184     | 66                     |
| 120     | 165     | M12     | 72      | 84      | 145                  | 25600   | 427     | 144                    | 69                   | 12200   | 203     | 68                     |
| 130     | 180     | M12     | 82      | 94      | 145                  | 35400   | 545     | 149                    | 69                   | 16800   | 258     | 71                     |
| 140     | 190     | M12     | 82      | 94      | 145                  | 40800   | 583     | 151                    | 69                   | 19400   | 277     | 72                     |
| 150     | 200     | M12     | 82      | 94      | 145                  | 43700   | 583     | 144                    | 69                   | 20800   | 277     | 68                     |
| 160     | 210     | M12     | 82      | 94      | 145                  | 49800   | 623     | 145                    | 69                   | 23700   | 296     | 69                     |
| 170     | 225     | M14     | 93      | 107     | 230                  | 67500   | 794     | 146                    | 108                  | 31700   | 373     | 69                     |
| 180     | 235     | M14     | 93      | 107     | 230                  | 71500   | 794     | 140                    | 108                  | 33500   | 372     | 66                     |
| 190     | 250     | M14     | 105     | 119     | 230                  | 80500   | 847     | 118                    | 108                  | 37800   | 398     | 56                     |
| 200     | 260     | M14     | 105     | 119     | 230                  | 95000   | 950     | 128                    | 108                  | 44700   | 447     | 60                     |
| 220     | 285     | M16     | 111     | 127     | 355                  | 119000  | 1082    | 124                    | 168                  | 56500   | 514     | 59                     |
| 240     | 305     | M16     | 111     | 127     | 355                  | 173500  | 1446    | 154                    | 168                  | 82200   | 685     | 72                     |
| 260     | 325     | M16     | 111     | 127     | 355                  | 197500  | 1519    | 152                    | 168                  | 93500   | 719     | 71                     |
| 280     | 355     | M20     | 111     | 131     | 690                  | 236000  | 1686    | 166                    | 369                  | 126000  | 900     | 89                     |
| 300     | 375     | M20     | 111     | 131     | 690                  | 270000  | 1800    | 168                    | 369                  | 144000  | 960     | 90                     |
| 320     | 405     | M20     | 136     | 156     | 690                  | 360000  | 2250    | 154                    | 369                  | 192000  | 1200    | 82                     |
| 340     | 425     | M20     | 136     | 156     | 690                  | 382000  | 2247    | 147                    | 369                  | 204000  | 1200    | 78                     |
| 360     | 455     | M22     | 155     | 177     | 930                  | 501000  | 2783    | 142                    | 550                  | 296000  | 1644    | 84                     |
| 380     | 475     | M22     | 155     | 177     | 930                  | 529000  | 2784    | 135                    | 550                  | 313000  | 1647    | 80                     |
| 400     | 495     | M22     | 155     | 177     | 930                  | 613000  | 3065    | 143                    | 550                  | 362000  | 1810    | 85                     |
| 420     | 515     | M22     | 155     | 177     | 930                  | 702000  | 3343    | 150                    | 550                  | 415000  | 1976    | 88                     |
| 440     | 535     | M22     | 155     | 177     | 930                  | 735000  | 3341    | 144                    | 550                  | 435000  | 1977    | 86                     |
| 460     | 555     | M22     | 155     | 177     | 930                  | 769000  | 3343    | 139                    | 550                  | 454000  | 1974    | 82                     |
| 480     | 575     | M22     | 155     | 177     | 930                  | 835000  | 3479    | 140                    | 550                  | 494000  | 2058    | 83                     |
| 500     | 595     | M22     | 155     | 177     | 930                  | 870000  | 3480    | 135                    | 550                  | 514000  | 2056    | 80                     |
| 520     | 615     | M22     | 155     | 177     | 930                  | 1014000 | 3900    | 146                    | 550                  | 599000  | 2304    | 86                     |
| 540     | 635     | M22     | 160     | 182     | 930                  | 1053000 | 3900    | 136                    | 550                  | 622000  | 2304    | 80                     |
| 560     | 655     | M22     | 160     | 182     | 930                  | 1170000 | 4179    | 141                    | 550                  | 692000  | 2471    | 84                     |
| 580     | 675     | M22     | 160     | 182     | 930                  | 1210000 | 4172    | 137                    | 550                  | 716000  | 2469    | 81                     |
| 600     | 695     | M22     | 160     | 182     | 930                  | 1250000 | 4167    | 139                    | 550                  | 741000  | 2470    | 78                     |

\* sopivat ohutseinämaisille navoille, kuten kuljettimien rummuille.



**BONFIX 9700**

**BONFIX 9500**

| d<br>mm | D<br>mm | M<br>mm | B<br>mm | L<br>mm | T <sub>s</sub><br>Nm | T<br>Nm | F<br>kN | P<br>N/mm <sup>2</sup> |
|---------|---------|---------|---------|---------|----------------------|---------|---------|------------------------|
| 25      | 50      | M 6     | 45      | 51      | 17                   | 700     | 55      | 80                     |
| 28      | 55      | M 6     | 45      | 51      | 17                   | 1000    | 70      | 90                     |
| 30      | 55      | M 6     | 45      | 51      | 17                   | 1200    | 70      | 90                     |
| 32      | 60      | M 6     | 45      | 51      | 17                   | 1300    | 70      | 90                     |
| 35      | 60      | M 6     | 45      | 51      | 17                   | 1400    | 70      | 90                     |
| 38      | 65      | M 6     | 45      | 51      | 17                   | 1850    | 90      | 100                    |
| 40      | 65      | M 6     | 45      | 51      | 17                   | 2000    | 100     | 100                    |
| 42      | 75      | M 8     | 45      | 51      | 41                   | 2900    | 140     | 130                    |
| 45      | 75      | M 8     | 45      | 51      | 41                   | 3200    | 140     | 130                    |
| 48      | 80      | M 8     | 62      | 70      | 41                   | 3400    | 140     | 80                     |
| 50      | 80      | M 8     | 62      | 70      | 41                   | 3600    | 140     | 80                     |
| 55      | 85      | M 8     | 62      | 70      | 41                   | 4000    | 140     | 80                     |
| 60      | 90      | M 8     | 62      | 70      | 41                   | 5400    | 170     | 90                     |
| 65      | 95      | M 8     | 62      | 70      | 41                   | 5800    | 170     | 90                     |
| 70      | 110     | M 10    | 76      | 86      | 83                   | 10300   | 280     | 100                    |
| 75      | 115     | M 10    | 76      | 86      | 83                   | 11000   | 280     | 100                    |
| 80      | 120     | M 10    | 76      | 86      | 83                   | 14000   | 340     | 110                    |
| 85      | 125     | M 10    | 76      | 86      | 83                   | 15000   | 340     | 110                    |
| 90      | 130     | M 10    | 76      | 86      | 83                   | 16000   | 340     | 100                    |
| 95      | 135     | M 10    | 76      | 86      | 83                   | 17000   | 340     | 100                    |
| 100     | 145     | M 12    | 98      | 110     | 145                  | 26000   | 500     | 100                    |
| 110     | 155     | M 12    | 98      | 110     | 145                  | 29000   | 500     | 100                    |
| 120     | 165     | M 12    | 98      | 110     | 145                  | 36500   | 600     | 110                    |
| 130     | 180     | M 14    | 114     | 128     | 230                  | 45400   | 700     | 100                    |
| 140     | 190     | M 14    | 114     | 128     | 230                  | 57000   | 800     | 110                    |
| 150     | 200     | M 14    | 114     | 128     | 230                  | 70000   | 900     | 120                    |
| 160     | 210     | M 14    | 114     | 128     | 230                  | 75000   | 900     | 110                    |
| 170     | 225     | M 16    | 146     | 162     | 355                  | 95000   | 1100    | 100                    |
| 180     | 235     | M 16    | 146     | 162     | 355                  | 115000  | 1200    | 110                    |
| 190     | 250     | M 16    | 146     | 162     | 355                  | 121500  | 1200    | 100                    |
| 200     | 260     | M 16    | 146     | 162     | 355                  | 128000  | 1200    | 100                    |
| 220     | 285     | M 16    | 146     | 162     | 355                  | 170000  | 1550    | 107                    |
| 240     | 305     | M 16    | 146     | 162     | 355                  | 205000  | 1710    | 109                    |
| 260     | 325     | M 16    | 150     | 166     | 355                  | 228000  | 1760    | 110                    |
| 280     | 355     | M 20    | 177     | 197     | 690                  | 310000  | 2240    | 105                    |
| 300     | 375     | M 20    | 177     | 197     | 690                  | 375000  | 2500    | 110                    |
| 320     | 405     | M 20    | 177     | 197     | 690                  | 420000  | 2620    | 105                    |
| 340     | 425     | M 20    | 177     | 197     | 690                  | 465000  | 2740    | 104                    |
| 360     | 455     | M22     | 202     | 224     | 930                  | 588000  | 3267    | 100                    |
| 380     | 475     | M22     | 202     | 224     | 930                  | 650000  | 3421    | 101                    |
| 400     | 495     | M22     | 202     | 224     | 930                  | 720000  | 3600    | 105                    |
| 420     | 515     | M22     | 202     | 224     | 930                  | 750000  | 3571    | 101                    |
| 440     | 535     | M22     | 202     | 224     | 930                  | 790000  | 3591    | 98                     |
| 460     | 555     | M22     | 202     | 224     | 930                  | 830000  | 3609    | 94                     |
| 480     | 575     | M22     | 202     | 224     | 930                  | 1000000 | 4167    | 106                    |

**BONFIX 9500**

| d<br>mm | D<br>mm | M<br>mm | B<br>mm | L<br>mm | T <sub>s</sub><br>Nm | T<br>Nm | F<br>kN | P<br>N/mm <sup>2</sup> |
|---------|---------|---------|---------|---------|----------------------|---------|---------|------------------------|
| 500     | 595     | M22     | 202     | 224     | 930                  | 1050000 | 4200    | 102                    |
| 520     | 615     | M22     | 202     | 224     | 930                  | 1170000 | 4500    | 106                    |
| 540     | 635     | M22     | 202     | 224     | 930                  | 1200000 | 4444    | 103                    |
| 560     | 655     | M22     | 202     | 224     | 930                  | 1300000 | 4643    | 106                    |
| 580     | 675     | M22     | 202     | 224     | 930                  | 1390000 | 4793    | 103                    |
| 600     | 695     | M22     | 202     | 224     | 930                  | 1480000 | 4933    | 103                    |

Koosta (d) 400 alkaen ulkorengas halkaisematon.

**BONFIX 9000**

| d<br>mm | D<br>mm | M<br>mm | B<br>mm | L<br>mm | T <sub>s</sub><br>Nm | T<br>Nm | F<br>kN | P<br>N/mm <sup>2</sup> |
|---------|---------|---------|---------|---------|----------------------|---------|---------|------------------------|
| 50      | 80      | M 8     | 78      | 86      | 41                   | 3600    | 180     | 65                     |
| 60      | 90      | M 8     | 78      | 86      | 41                   | 5400    | 220     | 75                     |
| 70      | 110     | M 10    | 102     | 112     | 83                   | 10300   | 350     | 75                     |
| 80      | 120     | M 10    | 102     | 112     | 83                   | 14000   | 400     | 85                     |
| 90      | 130     | M 10    | 102     | 112     | 83                   | 16000   | 430     | 75                     |
| 100     | 145     | M 12    | 122     | 134     | 145                  | 26000   | 570     | 80                     |

**BONFIX 9700**

| d<br>mm | D<br>mm | M<br>mm | B<br>mm | L<br>mm | T <sub>s</sub><br>Nm | T<br>Nm | F<br>kN | P<br>N/mm <sup>2</sup> |
|---------|---------|---------|---------|---------|----------------------|---------|---------|------------------------|
| 180     | 285     | M22     | 229     | 251     | 930                  | 224000  | 2489    | 129                    |
| 200     | 305     | M22     | 229     | 251     | 930                  | 285000  | 2850    | 137                    |
| 220     | 325     | M22     | 229     | 251     | 930                  | 313000  | 2845    | 129                    |
| 240     | 355     | M24     | 238     | 262     | 1200                 | 394000  | 3283    | 125                    |
| 260     | 375     | M24     | 238     | 262     | 1200                 | 481000  | 3700    | 133                    |
| 280     | 405     | M24     | 238     | 262     | 1200                 | 575000  | 4107    | 137                    |
| 300     | 425     | M24     | 238     | 262     | 1200                 | 616000  | 4107    | 130                    |
| 320     | 455     | M 27    | 280     | 307     | 1750                 | 776000  | 4850    | 120                    |
| 340     | 475     | M 27    | 280     | 307     | 1750                 | 920000  | 5412    | 128                    |
| 360     | 495     | M 27    | 280     | 307     | 1750                 | 1070000 | 5944    | 135                    |
| 380     | 515     | M 27    | 280     | 307     | 1750                 | 1130000 | 5947    | 130                    |
| 400     | 535     | M 27    | 280     | 307     | 1750                 | 1190000 | 5950    | 125                    |
| 420     | 555     | M 27    | 280     | 307     | 1750                 | 1360000 | 6476    | 130                    |
| 440     | 575     | M 27    | 280     | 307     | 1750                 | 1430000 | 6500    | 127                    |
| 460     | 595     | M 27    | 280     | 307     | 1750                 | 1490000 | 6478    | 123                    |
| 480     | 615     | M 27    | 280     | 307     | 1750                 | 1820000 | 7583    | 138                    |
| 500     | 635     | M 27    | 280     | 307     | 1750                 | 1890000 | 7560    | 134                    |
| 520     | 655     | M 27    | 280     | 307     | 1750                 | 1970000 | 7577    | 130                    |
| 540     | 675     | M 27    | 280     | 307     | 1750                 | 2190000 | 8111    | 135                    |
| 560     | 695     | M 27    | 280     | 307     | 1750                 | 2270000 | 8107    | 130                    |



# BONFIX 5000 - BONFIX 5500 - BONFIX 7000

## BONFIX 5000

Nopeasti kiinnitettävä  
ja irrotettava



## BONFIX 7000

Keskisuurille  
momenteille -  
Itsekeskittävä



## BONFIX 5000

| d<br>mm | D<br>mm | D <sub>1</sub><br>mm | B<br>mm | L<br>mm | T <sub>N</sub><br>Nm | T<br>Nm | F<br>kN | P<br>N/mm <sup>2</sup> |
|---------|---------|----------------------|---------|---------|----------------------|---------|---------|------------------------|
| 14      | 25      | 32                   | 6,5     | 16,5    | 65                   | 37      | 6       | 73                     |
| 15      | 25      | 32                   | 6,5     | 16,5    | 65                   | 40      | 6       | 73                     |
| 16      | 25      | 32                   | 6,5     | 16,5    | 65                   | 42      | 6       | 73                     |
| 17      | 25      | 38                   | 6,5     | 16,5    | 75                   | 63      | 7       | 80                     |
| 18      | 30      | 38                   | 7       | 17      | 85                   | 65      | 8       | 80                     |
| 19      | 30      | 38                   | 7       | 17      | 95                   | 60      | 7       | 70                     |
| 20      | 30      | 38                   | 7       | 17      | 110                  | 70      | 8       | 80                     |
| 22      | 35      | 45                   | 7       | 17      | 130                  | 80      | 9       | 80                     |
| 24      | 35      | 45                   | 7       | 17      | 155                  | 100     | 10      | 80                     |
| 25      | 35      | 45                   | 7       | 17      | 160                  | 110     | 10      | 90                     |
| 28      | 40      | 52                   | 8       | 20      | 200                  | 140     | 11      | 70                     |
| 30      | 40      | 52                   | 8       | 20      | 240                  | 170     | 14      | 80                     |
| 32      | 45      | 58                   | 9       | 22      | 320                  | 210     | 15      | 80                     |
| 35      | 45      | 58                   | 9       | 22      | 320                  | 230     | 15      | 80                     |
| 38      | 50      | 65                   | 9       | 23      | 440                  | 300     | 19      | 87                     |
| 40      | 50      | 65                   | 9       | 23      | 440                  | 330     | 19      | 90                     |
| 42      | 55      | 70                   | 10      | 25      | 550                  | 400     | 23      | 92                     |
| 45      | 55      | 70                   | 10      | 25      | 550                  | 440     | 23      | 90                     |
| 50      | 60      | 75                   | 10      | 25      | 660                  | 530     | 25      | 90                     |
| 55      | 65      | 80                   | 12      | 29,5    | 800                  | 640     | 27      | 80                     |
| 60      | 70      | 85                   | 12      | 29,5    | 900                  | 830     | 32      | 80                     |
| 70      | 84      | 98                   | 14      | 31,5    | 1200                 | 1100    | 31      | 90                     |

## BONFIX 5500

| d<br>mm | D<br>mm | D <sub>1</sub><br>mm | B<br>mm | L<br>mm | T <sub>N</sub><br>Nm | T<br>Nm | F<br>kN | P<br>N/mm <sup>2</sup> |
|---------|---------|----------------------|---------|---------|----------------------|---------|---------|------------------------|
| 14      | 25      | 32                   | 17      | 29      | 90                   | 90      | 15      | 80                     |
| 15      | 25      | 32                   | 17      | 29      | 90                   | 100     | 15      | 80                     |
| 16      | 25      | 32                   | 17      | 29      | 70                   | 80      | 12      | 60                     |
| 17      | 25      | 38                   | 18      | 31      | 90                   | 113     | 12      | 70                     |
| 18      | 30      | 38                   | 18      | 31      | 190                  | 200     | 25      | 110                    |
| 19      | 30      | 38                   | 18      | 31      | 150                  | 170     | 20      | 90                     |
| 20      | 30      | 38                   | 18      | 31      | 110                  | 130     | 15      | 60                     |
| 22      | 35      | 45                   | 22      | 35      | 130                  | 180     | 18      | 60                     |
| 24      | 35      | 45                   | 22      | 35      | 230                  | 270     | 26      | 80                     |
| 25      | 35      | 45                   | 22      | 35      | 170                  | 200     | 20      | 60                     |
| 28      | 40      | 52                   | 22      | 35      | 390                  | 460     | 40      | 110                    |
| 30      | 40      | 52                   | 22      | 35      | 240                  | 300     | 24      | 70                     |
| 32      | 45      | 58                   | 27      | 42      | 320                  | 420     | 31      | 70                     |
| 35      | 45      | 58                   | 28      | 42      | 320                  | 460     | 31      | 60                     |
| 40      | 50      | 65                   | 28      | 44      | 440                  | 640     | 37      | 70                     |
| 45      | 55      | 70                   | 28      | 45      | 550                  | 760     | 40      | 60                     |
| 50      | 60      | 75                   | 28      | 46      | 660                  | 930     | 44      | 60                     |
| 55      | 65      | 80                   | 28      | 47      | 800                  | 1130    | 47      | 60                     |
| 60      | 70      | 85                   | 28      | 52      | 1050                 | 1500    | 59      | 70                     |

## BONFIX 7000

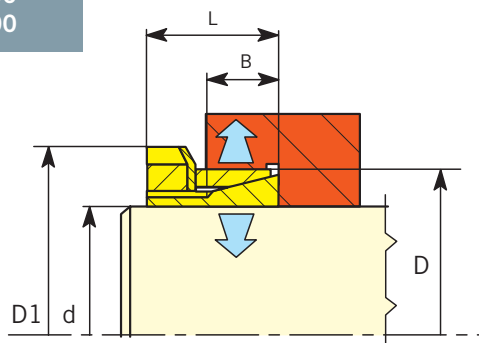
| d<br>mm | D<br>mm | B<br>mm | L<br>mm | M<br>mm | T <sub>s</sub><br>Nm | T<br>Nm | F<br>kN |
|---------|---------|---------|---------|---------|----------------------|---------|---------|
| 10      | 35      | 35      | 39      | 4       | 5,5                  | 62      | 12      |
| 11      | 35      | 35      | 39      | 4       | 5,5                  | 66      | 12      |
| 12      | 35      | 35      | 39      | 4       | 5,5                  | 72      | 12      |
| 14      | 35      | 35      | 39      | 4       | 5                    | 76      | 11      |
| 15      | 45      | 50      | 56      | 6       | 17                   | 160     | 23      |
| 16      | 45      | 50      | 56      | 6       | 17                   | 170     | 23      |
| 17      | 45      | 50      | 56      | 6       | 17                   | 180     | 23      |
| 18      | 50      | 50      | 56      | 6       | 17                   | 190     | 23      |
| 19      | 50      | 50      | 56      | 6       | 17                   | 200     | 23      |
| 20      | 50      | 50      | 56      | 6       | 17                   | 220     | 23      |
| 22      | 55      | 60      | 66      | 6       | 17                   | 360     | 33      |
| 24      | 55      | 60      | 66      | 6       | 17                   | 390     | 33      |
| 25      | 55      | 60      | 66      | 6       | 17                   | 400     | 33      |
| 28      | 60      | 60      | 66      | 6       | 17                   | 390     | 29      |
| 30      | 60      | 60      | 66      | 6       | 17                   | 420     | 29      |
| 32      | 75      | 75      | 83      | 8       | 41                   | 610     | 39      |
| 35      | 75      | 75      | 83      | 8       | 41                   | 670     | 39      |
| 38      | 75      | 75      | 83      | 8       | 41                   | 730     | 39      |
| 40      | 75      | 75      | 83      | 8       | 41                   | 760     | 39      |
| 42      | 85      | 85      | 93      | 8       | 41                   | 1170    | 57      |
| 45      | 85      | 85      | 93      | 8       | 41                   | 1260    | 57      |
| 48      | 90      | 85      | 93      | 8       | 41                   | 1360    | 57      |
| 50      | 90      | 85      | 93      | 8       | 41                   | 1400    | 57      |
| 55      | 95      | 85      | 93      | 8       | 41                   | 2000    | 76      |
| 60      | 100     | 85      | 93      | 8       | 41                   | 2260    | 76      |
| 65      | 105     | 85      | 93      | 8       | 41                   | 2500    | 77      |
| 70      | 115     | 100     | 110     | 10      | 83                   | 3300    | 95      |
| 75      | 120     | 100     | 110     | 10      | 83                   | 3500    | 95      |
| 80      | 125     | 100     | 110     | 10      | 75                   | 3900    | 100     |
| 90      | 136     | 100     | 110     | 10      | 75                   | 5100    | 113     |
| 100     | 158     | 120     | 132     | 12      | 130                  | 8350    | 167     |

T<sub>N</sub> (Nm) Mutterin kiristysmomentti

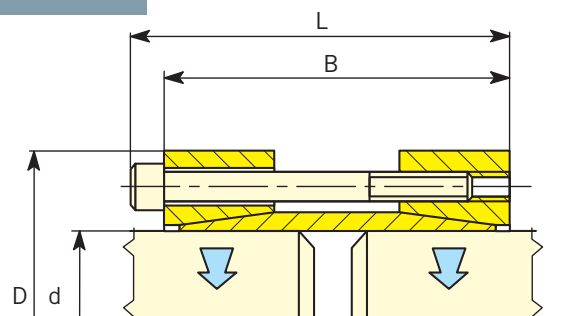
T (Nm) Mutterin kiritysmomentilla T<sub>N</sub> siirrettävissä oleva vääntömomentti  
F (kN) tai aksiaalivoima

p (N/mm<sup>2</sup>) Navan pintapaine

## BONFIX 5000 BONFIX 5500



## BONFIX 7000



# BONFIX 6000 - BONFIX 6500

## BONFIX 6000

Itsekeskittävä



### 6000

| d<br>mm | D<br>mm | B<br>mm | L<br>mm | M<br>mm | T <sub>s</sub><br>Nm | T<br>Nm | F<br>kN | P<br>N/mm <sup>2</sup> |
|---------|---------|---------|---------|---------|----------------------|---------|---------|------------------------|
| 16      | 32      | 17      | 21      | M 4     | 5                    | 80      | 13      | 68                     |
| 18      | 40      | 18      | 24      | M 6     | 17                   | 180     | 24      | 100                    |
| 19      | 41      | 18      | 24      | M 6     | 17                   | 190     | 24      | 100                    |
| 20      | 42      | 18      | 24      | M 6     | 17                   | 200     | 24      | 100                    |
| 22      | 44      | 18      | 24      | M 6     | 17                   | 220     | 24      | 90                     |
| 24      | 46      | 18      | 24      | M 6     | 17                   | 360     | 36      | 130                    |
| 25      | 47      | 18      | 24      | M 6     | 17                   | 380     | 36      | 130                    |
| 28      | 50      | 18      | 24      | M 6     | 17                   | 420     | 36      | 120                    |
| 30      | 52      | 18      | 24      | M 6     | 17                   | 450     | 36      | 120                    |
| 32      | 54      | 18      | 24      | M 6     | 17                   | 480     | 36      | 110                    |
| 35      | 57      | 22      | 28      | M 6     | 17                   | 700     | 36      | 90                     |
| 38      | 60      | 22      | 28      | M 6     | 17                   | 750     | 36      | 85                     |
| 40      | 62      | 22      | 28      | M 6     | 17                   | 800     | 36      | 80                     |
| 42      | 70      | 28      | 36      | M 8     | 41                   | 1500    | 90      | 135                    |
| 45      | 73      | 28      | 36      | M 8     | 41                   | 1700    | 90      | 130                    |
| 48      | 76      | 28      | 36      | M 8     | 41                   | 1780    | 90      | 123                    |
| 50      | 78      | 28      | 36      | M 8     | 41                   | 1840    | 90      | 120                    |
| 55      | 83      | 28      | 36      | M 8     | 41                   | 2000    | 90      | 130                    |
| 60      | 88      | 28      | 36      | M 8     | 41                   | 2200    | 90      | 100                    |
| 65      | 93      | 28      | 36      | M 8     | 41                   | 2400    | 110     | 110                    |
| 70      | 105     | 35      | 45      | M 10    | 80                   | 4100    | 150     | 125                    |
| 75      | 110     | 35      | 45      | M 10    | 80                   | 4400    | 150     | 120                    |
| 80      | 115     | 35      | 45      | M 10    | 80                   | 4700    | 150     | 115                    |
| 85      | 120     | 35      | 45      | M 10    | 80                   | 5500    | 180     | 125                    |
| 90      | 125     | 35      | 45      | M 10    | 80                   | 5800    | 180     | 120                    |
| 100     | 138     | 35      | 45      | M 10    | 80                   | 6500    | 180     | 110                    |

## BONFIX 6500

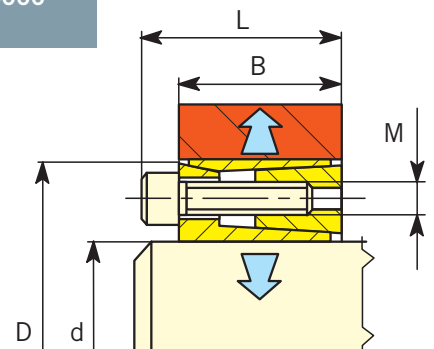
Itsekeskittävä



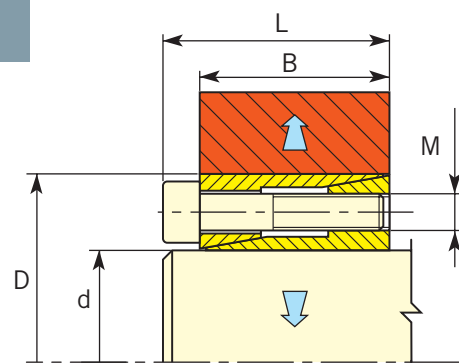
### 6500

| d<br>mm | D<br>mm | B<br>mm | L<br>mm | M<br>mm | T <sub>s</sub><br>Nm | T<br>Nm | F<br>kN | P<br>N/mm <sup>2</sup> |
|---------|---------|---------|---------|---------|----------------------|---------|---------|------------------------|
| 5       | 16      | 11      | 13,5    | 2,5     | 1,2                  | 5       | 2       | 55                     |
| 6       | 16      | 11      | 13,5    | 2,5     | 1,2                  | 6       | 2       | 55                     |
| 6,35    | 16      | 11      | 13,5    | 2,5     | 1,2                  | 6       | 2       | 55                     |
| 7       | 17      | 11      | 13,5    | 2,5     | 1,2                  | 8       | 2       | 55                     |
| 8       | 18      | 11      | 13,5    | 2,5     | 1,2                  | 10      | 2,5     | 50                     |
| 9       | 20      | 13      | 15,5    | 2,5     | 1,2                  | 15      | 3       | 55                     |
| 9,53    | 20      | 13      | 15,5    | 2,5     | 1,2                  | 15      | 3       | 55                     |
| 10      | 20      | 13      | 15,5    | 2,5     | 1,2                  | 15      | 3       | 55                     |
| 11      | 22      | 13      | 15,5    | 2,5     | 1,2                  | 18      | 3       | 50                     |
| 12      | 22      | 13      | 15,5    | 2,5     | 1,2                  | 20      | 3       | 50                     |
| 14      | 26      | 17      | 20      | 3       | 2,1                  | 35      | 5       | 55                     |
| 15      | 28      | 17      | 20      | 3       | 2,1                  | 40      | 5       | 50                     |
| 16      | 32      | 17      | 21      | 4       | 4,9                  | 70      | 8       | 65                     |
| 17      | 35      | 21      | 25      | 4       | 4,9                  | 75      | 8       | 60                     |
| 18      | 35      | 21      | 25      | 4       | 4,9                  | 80      | 8       | 60                     |
| 19      | 35      | 21      | 25      | 4       | 4,9                  | 85      | 8       | 60                     |
| 20      | 38      | 21      | 26      | 5       | 9,7                  | 150     | 15      | 75                     |
| 22      | 40      | 21      | 26      | 5       | 9,7                  | 160     | 14      | 70                     |
| 24      | 47      | 26      | 32      | 6       | 16,5                 | 250     | 20      | 75                     |
| 25      | 47      | 26      | 32      | 6       | 16,5                 | 260     | 20      | 75                     |
| 28      | 50      | 26      | 32      | 6       | 16,5                 | 440     | 30      | 100                    |
| 30      | 55      | 26      | 32      | 6       | 16,5                 | 470     | 30      | 95                     |
| 32      | 55      | 26      | 32      | 6       | 16,5                 | 500     | 30      | 95                     |
| 35      | 60      | 31      | 37      | 6       | 16,5                 | 730     | 40      | 95                     |
| 38      | 65      | 31      | 37      | 6       | 16,5                 | 800     | 40      | 90                     |
| 40      | 65      | 31      | 37      | 6       | 16,5                 | 840     | 40      | 90                     |
| 45      | 75      | 36      | 44      | 8       | 40                   | 1300    | 55      | 90                     |
| 50      | 80      | 36      | 44      | 8       | 40                   | 1900    | 75      | 115                    |

## BONFIX 6000



## BONFIX 6500





# MIDAS - BONFIX 3500

## MIDAS

Patentoitu



## BONFIX 3500

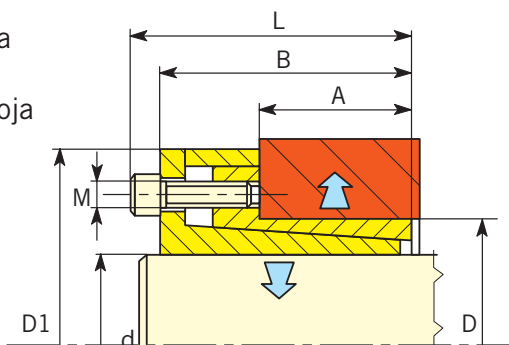


| MIDAS |                        |         |                      |         |         |         |         | $T_s$<br>Nm | T<br>Nm                     | F<br>kN | P<br>N/mm <sup>2</sup> |
|-------|------------------------|---------|----------------------|---------|---------|---------|---------|-------------|-----------------------------|---------|------------------------|
| Midas | d<br>mm                | D<br>mm | D <sub>1</sub><br>mm | A<br>mm | B<br>mm | L<br>mm | M<br>mm |             |                             |         |                        |
| 2614  | 10 - 11 - 12           | 26      | 40,5                 | 14      | 27,5    | 31,5    | 4       | 5           | 40 - 50 - 55                | 10      | 100                    |
|       | 14 - 15 - 16           |         |                      |         |         |         |         |             | 90 - 95 - 115               | 14      |                        |
|       | 18 - 19 - 20           |         |                      |         |         |         |         |             | 130 - 140 - 145             | 14      |                        |
| 3814  | 19 - 20 - 22           | 38      | 57                   | 14      | 33      | 39      | 6       | 17          | 195 - 200 - 240             | 22      | 104                    |
|       | 24 - 25 - 28 - 30      |         |                      |         |         |         |         |             | 265 - 275 - 310 - 330       |         |                        |
| 3827  | 19 - 20 - 22           | 38      | 57                   | 27      | 46      | 52      | 6       | 17          | 310 - 330 - 360             | 34      | 81                     |
|       | 24 - 25 - 28 - 30      |         |                      |         |         |         |         |             | 400 - 410 - 460 - 500       |         |                        |
| 5227  | 24 - 25 - 28 - 30      | 52      | 70,5                 | 27      | 46      | 52      | 6       | 17          | 470 - 490 - 550 - 590       | 44      | 79                     |
|       | 32 - 35 - 38 - 40 - 42 |         |                      |         |         |         |         |             | 700 - 770 - 840 - 880 - 920 |         |                        |
| 7237  | 28 - 30 - 32 - 35      | 72      | 96,5                 | 37      | 60      | 68      | 8       | 41          | 1240 - 1330 - 1420 - 1550   | 105     | 99                     |
|       | 38 - 40 - 42 - 45      |         |                      |         |         |         |         |             | 1780 - 1880 - 1970 - 2110   |         |                        |
|       | 48 - 50 - 55 - 60      |         |                      |         |         |         |         |             | 2250 - 2350 - 2590 - 2820   |         |                        |

| BONFIX 3500 |                   |         |                      |         |         |         |         | $T_s$<br>Nm | T<br>Nm                   | F<br>kN | P<br>N/mm <sup>2</sup> |
|-------------|-------------------|---------|----------------------|---------|---------|---------|---------|-------------|---------------------------|---------|------------------------|
| EP          | d<br>mm           | D<br>mm | D <sub>1</sub><br>mm | A<br>mm | B<br>mm | L<br>mm | M<br>mm |             |                           |         |                        |
| 55          | 14 - 16           | 55      | 62                   | 22      | 30      | 38      | 8       | 41          | 287 - 329                 | 41      | 103                    |
|             | 18 - 19 - 20      | 55      | 62                   | 22      | 30      | 38      | 8       | 41          | 370 - 390 - 410           | 41      | 103                    |
|             | 22 - 24 - 25      | 55      | 62                   | 22      | 30      | 38      | 8       | 41          | 451 - 492 - 513           | 41      | 103                    |
|             | 28 - 30           | 55      | 62                   | 22      | 30      | 38      | 8       | 41          | 575 - 616                 | 41      | 103                    |
| 65          | 24 - 25           | 65      | 72                   | 22      | 30      | 38      | 8       | 41          | 616 - 641                 | 51      | 111                    |
|             | 28 - 30 - 32      | 65      | 72                   | 22      | 30      | 38      | 8       | 41          | 718 - 770 - 821           | 51      | 111                    |
|             | 35 - 38 - 40      | 65      | 72                   | 22      | 30      | 38      | 8       | 41          | 898 - 975 - 1026          | 51      | 111                    |
| 80          | 30 - 32 - 35      | 80      | 88                   | 25      | 33      | 41      | 8       | 41          | 1077 - 1150 - 1257        | 72      | 108                    |
|             | 38 - 40           | 80      | 88                   | 25      | 33      | 41      | 8       | 41          | 1364 - 1436               | 72      | 108                    |
|             | 42 - 45 - 48 - 50 | 80      | 88                   | 25      | 33      | 41      | 8       | 41          | 1509 - 1616 - 1723 - 1796 | 72      | 108                    |

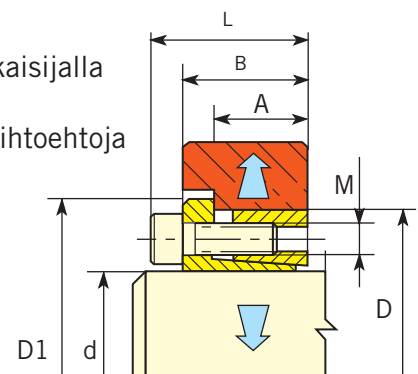
## MIDAS

Samalla  
ulkohalkaisijalla  
useita  
akselivaihtoehtoja  
Pienet  
rakennemitat



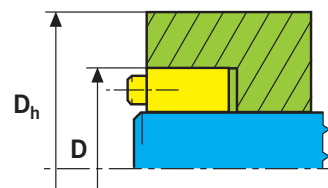
## BONFIX 3500

Samalla  
ulkohalkaisijalla  
useita  
akselivaihtoehtoja

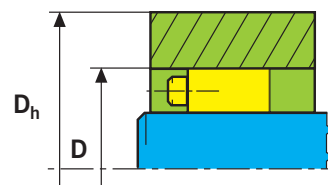


# BONFIX Tekniset tiedot

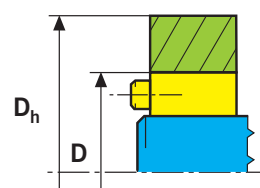
| P<br>N/mm <sup>2</sup> | f   | C<br>G25<br>σ = 180<br>N/mm <sup>2</sup> | C<br>St 37<br>σ = 220<br>N/mm <sup>2</sup> | C<br>C 40<br>σ = 300<br>N/mm <sup>2</sup> |
|------------------------|-----|------------------------------------------|--------------------------------------------|-------------------------------------------|
|                        |     |                                          |                                            |                                           |
| 60                     | 0,6 | 1,25                                     | 1,18                                       | 1,12                                      |
|                        | 0,8 | 1,30                                     | 1,23                                       | 1,18                                      |
|                        | 1   | 1,42                                     | 1,32                                       | 1,22                                      |
| 80                     | 0,6 | 1,31                                     | 1,25                                       | 1,18                                      |
|                        | 0,8 | 1,45                                     | 1,35                                       | 1,24                                      |
|                        | 1   | 1,61                                     | 1,46                                       | 1,31                                      |
| 100                    | 0,6 | 1,41                                     | 1,32                                       | 1,22                                      |
|                        | 0,8 | 1,61                                     | 1,46                                       | 1,31                                      |
|                        | 1   | 1,86                                     | 1,63                                       | 1,41                                      |
| 130                    | 0,6 | 1,59                                     | 1,45                                       | 1,30                                      |
|                        | 0,8 | 1,93                                     | 1,67                                       | 1,44                                      |
|                        | 1   | 2,49                                     | 1,97                                       | 1,59                                      |
| 160                    | 0,6 | 1,81                                     | 1,60                                       | 1,39                                      |
|                        | 0,8 | 2,43                                     | 1,94                                       | 1,58                                      |
|                        | 1   | 4,12                                     | 2,52                                       | 1,81                                      |



f = 0,6



f = 0,8



f = 1

D<sub>h</sub> = Navan minimihalkaisija

p = Pintapaine kiinnitysholkin ja navan välillä

f = Asennustavasta riippuva varmuuskerroin

σ = Napamateriaalin myötöraja

C = D<sub>h min.</sub> = c x D

- ① Akselin toleranssi  
② Navan reiän toleranssi  
③ Pinnankarheus

| BONFIX                                                                           | ①         | ②         | ③                       |
|----------------------------------------------------------------------------------|-----------|-----------|-------------------------|
| 2000                                                                             | k11 - h11 | N11 - H11 | R <sub>a</sub> ≤ 3.2 μm |
| 8100 - 8200 ds ≤ 160                                                             | h6        | H7        | R <sub>a</sub> ≤ 3.2 μm |
| ds > 160                                                                         | g6        | H7        | R <sub>a</sub> ≤ 3.2 μm |
| 8000 - ds < 30                                                                   | j6        | H6        | R <sub>a</sub> ≤ 3.2 μm |
| 30 < ds < 50                                                                     | h6        | H6        | R <sub>a</sub> ≤ 3.2 μm |
| 50 < ds < 80                                                                     | g6        | H6        | R <sub>a</sub> ≤ 3.2 μm |
| 80 < ds < 500                                                                    | g6        | H7        | R <sub>a</sub> ≤ 3.2 μm |
| 3000 - d < 38                                                                    | h6        | H7        | R <sub>a</sub> ≤ 1 μm   |
| d > 38                                                                           | h8        | H8        | R <sub>a</sub> ≤ 1 μm   |
| 1000-4000-4100-4500-4600-9000-9500-9600-9700-5000-5500-6000-7000-6500-MIDAS-3500 | h8        | H8        | R <sub>a</sub> ≤ 3.2 μm |

| Kuormituksen käyttökerroin<br><br>Käyttökerroin määräytyy kytkettävän moottorin ja kuormituksen tyyppin mukaisesti. | Moottori       | Kuormitus          |                    |                     |
|---------------------------------------------------------------------------------------------------------------------|----------------|--------------------|--------------------|---------------------|
|                                                                                                                     |                | tasainen kuormitus | kevyt ylikuormitus | raskas ylikuormitus |
|                                                                                                                     | sähkömoottori  | 1                  | 1,5                | 2                   |
|                                                                                                                     | polttomoottori | 1,5                | 2                  | 2,5                 |





## BONFIXin asennus

Puhdista ja öljyä kevyesti kaikki kosketuspinnat: ruuvinkierteet, ruuvipäät, akseli ja napa. Älä käytä öljyjä, jotka sisältävät molybdeenisulfaattia ( $MoS_2$ ).

Kiristä ruuveja kevyesti ja suuntaa napa. Kiristä ruuveja vuorotellen ristikkäin kahdessa tai kolmessa vaiheessa luettelossa annettuun lukitusruuvien kiristysmomenttiin  $T_s$ . Tarkista uudelleen kaikkien ruuvien kiristysmomentit.

### BONFIX 2000

Kaikki hopeanväriset ruuvit kierretään ulkorenkkaan reikiin, joissa on kiinnitysholkin ulosvetokierreet. Muut BONFIX-kiinnitysholkit: Ulkorenkkaan ulosvetokierreet riittää täytyy asettaa niin, että ne osuvat sisärenkaan riittämiin kohtiin. Niitä tarvitaan kiinnitysholkin purkamiseen ennen asennusta.

### BONFIXin irrotus

**BONFIX 9500-, 9600-, 9700- ja 9000** -sarjojen ruuvien kiristys on esitetty kuvassa 7. Löysää kaikkia ruuveja kiertämällä niitä muutama kierros.

### BONFIX 2000

Irtoaa yleensä itsestään suuren kartiokulman ansiosta. Tarvittaessa kopautetaan ruuveja kevyesti, jotta sisärenkas irtoaa (kuva 1). Jos ulkorengas ei irtoa, käytä yhtä suurempaa ruuvikokoa ja kierrä ruuvit ulosvetoreikiin, jotka ovat hopeanväristen ruuvien alla. Vedä ulkorengas irti (kuva 2). Ulosvetorei'issä on vain kolme kierrettä.

### BONFIX 1000, 3500, 4000, 4100, 4500, 4600, 6000, 6500, MIDAS, 3500, 8100, 8200

Irrota ruuvit ja kierrä ne ulkorenkkaan ulosvetokierteen, jolloin sisärenkas vapautuu ja BONFIX irtoaa (kuva 4). Poista ruuvit ulosvetokierteen vasta kun BONFIX on irrotettu navasta.

### BONFIX 8000

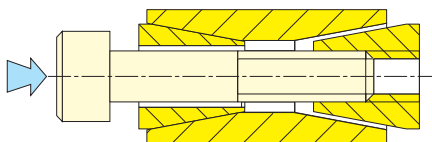
Irtoaa yleensä itsestään suuren kartiokulman ansiosta. Tarvittaessa kopautetaan ruuveja kevyesti, jotta sisärenkas irtoaa (kuva 3).

### BONFIX 9000, 9500, 9600, 9700

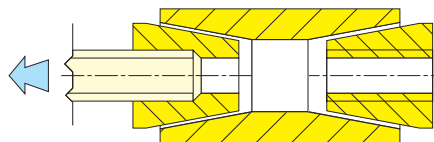
Irrotus 1 (kuva 5): Irrota ruuvit ja kierrä ne ulkorenkkaan ulosvetokierteen ja vapauta rengas. Irrotus 2 (kuva 6): Kierrä ruuvit keskilaipan ulosvetokierteen ja vapauta takimmainen sisärenkas.

## Irrotus

Kuva 1

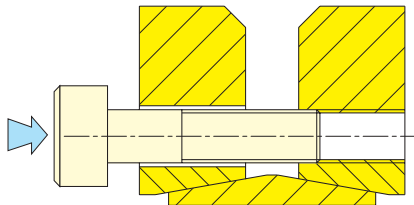


Kuva 2



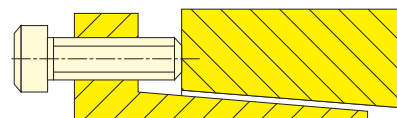
BONFIX 2000

Kuva 3



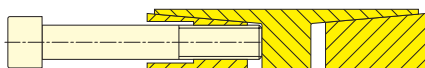
BONFIX 8000

Kuva 4



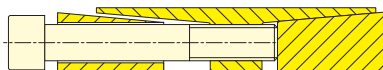
BONFIX 1000, 4000, 4100, 4500, 4600, 6000, 6500, MIDAS, 3500, 8100, 8200

Kuva 5



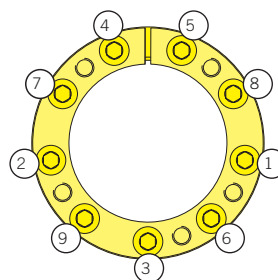
BONFIX 9000, 9500, 9600, 9700

Kuva 6



BONFIX 9000, 9500, 9600, 9700

Kuva 7



#### Kiristys- ja irrotusjärjestys

Kiristetään kuvan mukaisessa järjestyksessä. Irrotus käänteisessä järjestyksessä.

BONFIX 9000, 9500, 9600, 9700



## Asennus/purkuohjeet BONFIX 8100 - 8200

Säilytä ja kuljeta BONFIX 8100- ja 8200 -kiinnityselementit ruuvit ylöspäin.

### Asennusohjeet

- Älä kiristä ruuveja ennen kuin holkki on asennettu napaan.
- Tarkista, että laippa ja ulkolaippa ovat "irti" ennen asennusta, tarvittaessa irrota laippa käyttämällä poistoruuveja.
- Puhdista ja öljyä kevyesti kiinnityselementin sisähalkaisija sekä navan ulkohalkaisija.
- Jotta luettelon lupaamat vääntömomenttiarvot välittyvät, on erityisen tärkeää puhdistaa ja rasvata akselin ja navan välinen pinta. Lisäksi on syytä noudattaa teknisten ohjeiden toleransseja ja tarkkuutta.
- Akselin ja navan asennuksen jälkeen aseta kiinnityselementti ja kiristä ruuvit käsin.

### Kiristys momenttiavaimella

- Kiristä ruuvit momenttiavaimella myötäväisessä järjestyksessä, kunnes luettelossa määritelty vääntömomenttiarvo  $T_s$  on saavutettu.

- Kiristettäessä momenttiavaimella tarkista, että laippa ja ulkorengas ovat samalla linjalla.

### Kiristys ilman momenttiavainta

- Kiristä ruuvit myötäväisessä järjestyksessä useassa eri vaiheessa, jotta voit asettaa linjaan laipan ja ulkorengaan pinnat. Näin kiinnitysholkki välittää esitteen mukaisen vääntömomentin.

### Purku

- Irrota ruuvit myötäväisessä järjestyksessä asteittain, kunnes laippa ja rengas ovat irronneet.
- Jos laippa ja ulkorengas eivät irtoa, avaa muutama ruuvi ja kierrä ruuvit ulosvetoreikiin. Älä irrota kaikkia ruuveja, muuten laippa ja ulkorengas aiheuttavat vaaratilanteen.

### Toistuva BONFIXIN käyttö

- Irrotuksen yhteydessä kartiot pitää uudelleen voidella.

## Asennus/purkuohjeet BONFIX 8000

### Asennusohjeet

- Älä kiristä ruuveja ennen kuin holkki on asennettu napaan.
- Puhdista ja öljyä kevyesti kiinnitysholkin sisähalkaisija sekä navan ulkohalkaisija.
- Jotta luettelon lupaamat vääntömomenttiarvot voidaan siirtää, on erityisen tärkeää puhdistaa ja rasvata akselin ja navan välinen pinta. Lisäksi on syytä noudattaa teknisen ohjeistuksen toleransseja ja tarkkuutta.
- Akselin ja navan kokoamisen jälkeen aseta kiinnitysholkki sekä renkaat samaan linjaan ja kiristä ruuvit käsin.

### Kiristys momenttiavaimella

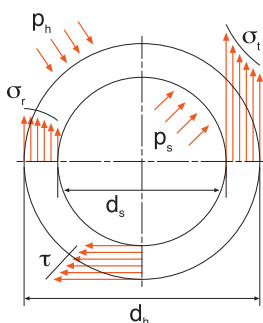
- Kiristä ruuvit momenttiavaimella myötäväisessä järjestyksessä askeleittain, kunnes luettelossa mainittu vääntömomenttiarvo  $T_s$  on saavutettu.

### Purku

- Vapauta ruuvit myötäväisessä järjestyksessä vaiheittain ottamatta niitä kuitenkaan kokonaan pois, kunnes laippa ja rengas irtoavat.

### Navan laskenta

Navan materiaalin tulee olla myötölujuudeltaan minimissään 350 N/mm<sup>2</sup>, kuten esimerkiksi teräs C45. Raskaimmissa käytöissä tulee käyttää lämpökäsiteltyä terästä, esim. 42CrMo4. Suurempia akseleita voidaan käyttää, jos navan materiaali sen sallii. Toleranssit ja pinnan laadut on esitetty Tekniset tiedot-osiossa sivulla 17. Valitun navan materiaalin myötölujuuden täytyy olla suurempi kuin kokonaisjännitys.



$$\sigma_v = \sqrt{\sigma_t^2 + \sigma_r^2 - \sigma_t \cdot \sigma_r + 3\tau^2}$$

$$p_s = \frac{2 \cdot T}{\pi \cdot d_s^2 \cdot l \cdot \mu}$$

$$p_h = p_s + \frac{\Delta d_s \cdot E \cdot \left[1 - \left(\frac{d_s}{d_h}\right)^2\right]}{2 \cdot d_s}$$

$$\tau = \frac{16 \cdot T \cdot d_s \cdot 10^3}{\pi (d_h^4 - d_s^4)}$$

$$\sigma_t = \frac{p_s \cdot \left[1 + \left(\frac{d_s}{d_h}\right)^2\right] - 2p_h}{1 - \left(\frac{d_s}{d_h}\right)^2}$$

$$\sigma_r = -p_s$$

|            |                      |                         |
|------------|----------------------|-------------------------|
| $\sigma_v$ | [N/mm <sup>2</sup> ] | navan kokonaisjännitys  |
| $\sigma_t$ | [N/mm <sup>2</sup> ] | kehän normaali-jännitys |
| $\tau$     | [N/mm <sup>2</sup> ] | navan leikkausjännitys  |
| $\sigma_r$ | [N/mm <sup>2</sup> ] | navan radiaali-jännitys |
| $p_s$      | [N/mm <sup>2</sup> ] | akselin paine           |
| $p_h$      | [N/mm <sup>2</sup> ] | navan paine             |
| $d_s$      | [mm]                 | akselin halkaisija      |

|          |                      |                                     |
|----------|----------------------|-------------------------------------|
| $d_h$    | [mm]                 | navan halkaisija                    |
| $T$      | [Nm]                 | suurin vääntömomentti               |
| $\mu$    | [ ]                  | kitkan yhteisvaikutus akseli - napa |
| $l$      | [mm]                 | kiinnitysholkin akselinpituus       |
| $d_s$    | [mm]                 | akselin ja navan välinen välys      |
| $\Delta$ | [N/mm <sup>2</sup> ] | kimmokerroin                        |

## SKS Mekaniikka Oy

Martinkyläntie 50, PL 122, FI-01721 Vantaa  
puhelin 020 764 61, faksi 020 764 6824  
mekaniikka@sk.fi, www.sk.fi

### Etelä-Suomi

Martinkyläntie 50, PL 122, FI-01721 Vantaa  
puhelin 020 764 61, faksi 020 764 6824

### Keski-Suomi

Tammelan puistokatu 21 A, FI-33500 Tampere  
puhelin 020 764 7500, faksi 020 764 7501

### Länsi-Suomi

Postikatu 2, FI-20250 Turku  
puhelin 020 764 7600, faksi 020 764 7649

### Tavaraosote

Martinkyläntie 50, PL 122, FI-01721 Vantaa  
puhelin 020 764 61, faksi 020 764 6825

## SKS Group

SKS Automaatio Oy  
SKS Connecto Oy  
SKS Control Oy  
SKS Mechatronics Oy  
SKS Mekaniikka Oy  
SKS Toijala Works Oy  
SKS Tehnika OÜ (Tallinna, Viro)  
SKS Group -edustusto (Pietari, Venäjä)  
SKS China Co., Ltd. (Shanghai, Kiina)  
SKS Connecto Polska Sp. z o.o. (Grudziądz, Puola)  
SKS Sweden AB (Lomma, Ruotsi)

## Esite nro 1228402

Pidätämme oikeudet muutoksiin

