

# ESZ Type 200

with supervisory approval

**t = 10 mm**

Approval no. Z-16.32-408

## Design table

perm. **F** = KN (shown by the orange table)

perm.  $\sigma_m$  = N/mm<sup>2</sup> (shown by the green table)

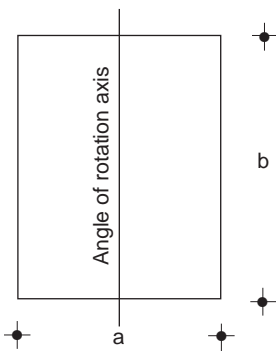
perm.  $\alpha$  = 0\* (no perm. scheduled torsion)

Intermediate dimensions may be interpolated

| a = mm<br>b = mm | 80   | 90    | 100   | 110   | 120   | 130   | 140   | 150   | 160   | 170   | 180   | 190   | 200   | 230     | 250     | 300     | 350     | 400     | 500     |
|------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|---------|---------|---------|---------|---------|
| 80               | 79.3 | 92.2  | 105.6 | 119.7 | 133.4 | 145.6 | 160.1 | 175.2 | 189.4 | 202.6 | 216.0 | 232.6 | 246.0 | 292.6   | 322.0   | 400.8   | 478.8   | 556.0   | 720.0   |
| 90               | 12.4 | 113.4 | 129.6 | 145.5 | 163.1 | 179.0 | 199.1 | 216.0 | 233.0 | 250.9 | 268.9 | 285.6 | 304.2 | 362.3   | 398.3   | 494.1   | 595.4   | 694.8   | 882.0   |
| 100              | 13.2 | 14.0  | 156.0 | 174.9 | 195.6 | 215.8 | 238.0 | 259.5 | 280.0 | 300.9 | 324.0 | 345.8 | 370.0 | 434.7   | 480.0   | 600.0   | 700.0   | 800.0   | 1,000.0 |
| 110              | 13.6 | 14.7  | 15.9  | 206.9 | 231.0 | 257.4 | 280.3 | 307.2 | 334.4 | 357.2 | 382.1 | 407.6 | 435.6 | 506.0   | 550.0   | 660.0   | 770.0   | 880.0   | 1,100.0 |
| 120              | 13.9 | 15.1  | 16.3  | 17.5  | 269.3 | 296.4 | 306.0 | 360.0 | 384.0 | 408.0 | 432.0 | 456.0 | 480.0 | 552.0   | 600.0   | 720.0   | 840.0   | 960.0   | 1,200.0 |
| 130              | 14.0 | 15.3  | 16.6  | 18.0  | 18.7  | 338.0 | 364.0 | 390.0 | 416.0 | 442.0 | 468.0 | 494.0 | 520.0 | 598.0   | 650.0   | 780.0   | 910.0   | 1,040.0 | 1,300.0 |
| 140              | 14.3 | 15.8  | 17.0  | 18.2  | 19.5  | 20.0  | 392.0 | 420.0 | 448.0 | 476.0 | 504.0 | 532.0 | 560.0 | 644.0   | 700.0   | 840.0   | 980.0   | 1,120.0 | 1,400.0 |
| 150              | 14.6 | 16.0  | 17.3  | 18.6  | 20.0  | 20.0  | 20.0  | 450.0 | 480.0 | 510.0 | 540.0 | 570.0 | 600.0 | 690.0   | 750.0   | 900.0   | 1,050.0 | 1,200.0 | 1,500.0 |
| 160              | 14.8 | 16.2  | 17.5  | 19.0  | 20.0  | 20.0  | 20.0  | 20.0  | 512.0 | 544.0 | 576.0 | 608.0 | 640.0 | 736.0   | 800.0   | 960.0   | 1,120.0 | 1,280.0 | 1,600.0 |
| 170              | 14.9 | 16.4  | 17.7  | 19.1  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 578.0 | 612.0 | 646.0 | 680.0 | 782.0   | 850.0   | 1,020.0 | 1,190.0 | 1,360.0 | 1,700.0 |
| 180              | 15.0 | 16.6  | 18.0  | 19.3  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 648.0 | 684.0 | 720.0 | 828.0   | 900.0   | 1,080.0 | 1,260.0 | 1,440.0 | 1,800.0 |
| 190              | 15.3 | 16.7  | 18.2  | 19.5  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 722.0 | 760.0 | 874.0   | 950.0   | 1,140.0 | 1,330.0 | 1,520.0 | 1,900.0 |
| 200              | 15.4 | 16.9  | 18.5  | 19.8  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 800.0 | 920.0   | 1,000.0 | 1,200.0 | 1,400.0 | 1,600.0 | 2,000.0 |
| 230              | 15.9 | 17.5  | 18.9  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 1,058.0 | 1,150.0 | 1,380.0 | 1,610.0 | 1,840.0 | 2,300.0 |
| 250              | 16.1 | 17.7  | 19.2  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0    | 1,250.0 | 1,500.0 | 1,750.0 | 2,000.0 | 2,500.0 |
| 300              | 16.7 | 18.3  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0    | 20.0    | 1,800.0 | 2,100.0 | 2,400.0 | 3,000.0 |
| 350              | 17.1 | 18.9  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0    | 20.0    | 20.0    | 2,450.0 | 2,800.0 | 3,500.0 |
| 400              | 17.4 | 19.3  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0    | 20.0    | 20.0    | 20.0    | 3,200.0 | 4,000.0 |
| 500              | 18.0 | 19.6  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0    | 20.0    | 20.0    | 20.0    | 20.0    | 5,000.0 |

\* = only for bearings subjected to pressure (criteria according to leaflet 339 Daf Stb)

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## Design table

perm.  $F$  = KN (shown by the orange table)

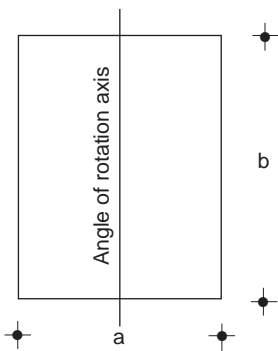
perm.  $\sigma_m$  = N/mm<sup>2</sup> (shown by the green table)

perm.  $\alpha$  = 10% (angle of rotation axis at right angles to the smaller bearing side )

Intermediate dimensions may be interpolated

| a = mm<br>b = mm | 80   | 90    | 100   | 110   | 120   | 130   | 140   | 150   | 160   | 170   | 180   | 190   | 200   | 230   | 250   | 300     | 350     | 400     | 500     |
|------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|---------|---------|---------|
| 80               | 74.8 | 86.1  | 99.7  | 111.7 | 124.5 | 136.7 | 151   | 163.8 | 176.8 | 189.4 | 202.2 | 216.8 | 230.0 | 273.8 | 301.0 | 375.0   | 448.5   | 512.0   | 640.0   |
| 90               | 11.7 | 104.5 | 118.9 | 135.1 | 148.7 | 164.0 | 180.6 | 198.5 | 214.4 | 230.6 | 247.2 | 263.1 | 279.1 | 328.7 | 367.1 | 455.6   | 547.7   | 637.3   | 796.0   |
| 100              | 12.0 | 12.9  | 140.4 | 158.2 | 178.2 | 194.8 | 213.6 | 233.9 | 252.7 | 272.0 | 291.6 | 311.6 | 351.0 | 388.1 | 432.0 | 540.7   | 648.5   | 761.4   | 950.0   |
| 110              | 12.5 | 13.2  | 14.0  | 182.5 | 203.9 | 228.1 | 247.9 | 270.4 | 294.8 | 316.0 | 336.0 | 359.2 | 382.9 | 455.0 | 498.6 | 622.2   | 753.8   | 880.0   | 1,100.0 |
| 120              | 12.7 | 13.6  | 14.4  | 15.1  | 230.8 | 256.0 | 284.7 | 306.5 | 328.4 | 355.2 | 384.4 | 411.0 | 438.2 | 516.7 | 573.2 | 710.0   | 840.0   | 960.0   | 1,200.0 |
| 130              | 13.0 | 13.8  | 14.9  | 15.4  | 16.0  | 284.8 | 314.1 | 347.6 | 372.4 | 397.5 | 428.5 | 462.3 | 490.8 | 581.4 | 639.9 | 780.0   | 910.0   | 1,040.0 | 1,300.0 |
| 140              | 13.1 | 14.0  | 15.0  | 16.0  | 16.4  | 16.9  | 344.2 | 377.6 | 416.0 | 444.0 | 472.3 | 507.5 | 536.6 | 636.1 | 700.0 | 840.0   | 980.0   | 1,120.0 | 1,400.0 |
| 150              | 13.5 | 14.3  | 15.3  | 16.1  | 16.9  | 17.3  | 17.6  | 408.0 | 445.7 | 475.8 | 517.9 | 551.6 | 583.3 | 690.0 | 750.0 | 900.0   | 1,050.0 | 1,200.0 | 1,500.0 |
| 160              | 13.6 | 14.7  | 15.6  | 16.4  | 17.0  | 17.8  | 18.0  | 18.1  | 475.4 | 517.3 | 550.3 | 599.8 | 632.8 | 736.0 | 800.0 | 960.0   | 1,120.0 | 1,280.0 | 1,600.0 |
| 170              | 13.8 | 14.9  | 15.8  | 16.8  | 17.1  | 17.9  | 18.6  | 18.6  | 18.6  | 544.9 | 582.5 | 623.7 | 678.1 | 782.0 | 850.0 | 1,020.0 | 1,190.0 | 1,360.0 | 1,700.0 |
| 180              | 13.9 | 15.1  | 16.0  | 16.9  | 17.4  | 18.0  | 18.7  | 18.7  | 19.0  | 18.9  | 615.0 | 655.4 | 699.8 | 828.0 | 900.0 | 1,080.0 | 1,260.0 | 1,440.0 | 1,800.0 |
| 190              | 14.0 | 15.3  | 16.2  | 17.0  | 17.8  | 18.3  | 18.7  | 19.2  | 19.1  | 19.0  | 19.0  | 683.7 | 737.0 | 874.0 | 950.0 | 1,140.0 | 1,330.0 | 1,520.0 | 1,900.0 |
| 200              | 14.3 | 15.4  | 16.4  | 17.2  | 18.0  | 18.7  | 19.1  | 19.4  | 19.7  | 19.3  | 19.2  | 18.9  | 748.8 | 910.8 | 990.0 | 1,200.0 | 1,400.0 | 1,600.0 | 2,000.0 |
| 230              | 14.4 | 15.5  | 17.6  | 17.4  | 18.3  | 18.9  | 19.2  | 19.4  | 19.8  | 19.9  | 19.4  | 19.4  | 18.7  | 894.0 | 995.1 | 1,244.5 | 1,510.8 | 1,771.5 | 2,300.0 |
| 250              | 14.9 | 15.9  | 16.9  | 18.0  | 18.7  | 19.4  | 19.8  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 19.8  | 16.9  | 914.1 | 1,160.2 | 1,390.4 | 1,645.3 | 2,162.1 |
| 300              | 15.1 | 16.3  | 17.3  | 18.1  | 19.1  | 19.7  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 19.8  | 17.3  | 14.6  | 421.2   | 519.8   | 599.4   | 789.8   |
| 350              | 15.6 | 16.9  | 18.0  | 18.9  | 19.7  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 18.0  | 15.5  | 4.7     |         |         |         |
| 400              | 16.0 | 17.4  | 18.5  | 19.6  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 18.8  | 15.9  | 5.0     |         |         |         |
| 500              | 16.0 | 17.7  | 19.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 19.3  | 16.5  | 5.0     |         |         |         |
| 500              | 16.0 | 17.7  | 19.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 17.3  | 5.3     |         |         |         |

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## Design table

perm. **F** = KN (shown by the orange table)

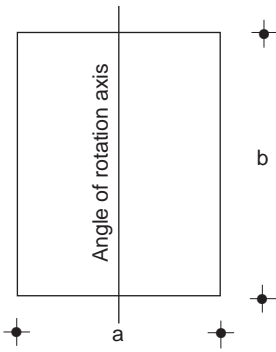
perm.  $\sigma_m$  = N/mm<sup>2</sup> (shown by the green table)

perm.  $\alpha$  = 25% (angle of rotation axis at right angles to the smaller bearing side )

Intermediate dimensions may be interpolated

| $\frac{a}{b}$<br>mm/mm | 80   | 90   | 100   | 110   | 120   | 130   | 140   | 150   | 160   | 170   | 180   | 190   | 200   | 230   | 250   | 300   | 350   | 400   | 500     |
|------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| 80                     | 67.1 | 77.3 | 89.5  | 100.2 | 111.8 | 122.7 | 135.5 | 147.0 | 158.7 | 170.0 | 181.4 | 194.6 | 206.4 | 245.8 | 270.1 | 336.6 | 402.5 | 460.0 | 576.0   |
| 90                     | 10.5 | 90.7 | 103.2 | 117.2 | 129.1 | 142.3 | 156.7 | 172.2 | 186.0 | 200.1 | 214.5 | 228.3 | 242.2 | 285.3 | 318.5 | 395.3 | 475.3 | 553.1 | 693.0   |
| 100                    | 11.2 | 11.5 | 117.0 | 131.8 | 148.5 | 162.3 | 178.0 | 194.9 | 210.6 | 226.6 | 243.0 | 259.7 | 292.5 | 323.4 | 360.0 | 450.6 | 540.4 | 634.5 | 795.0   |
| 110                    | 11.4 | 11.8 | 12.0  | 144.8 | 161.8 | 181.0 | 196.7 | 214.6 | 233.9 | 250.7 | 266.6 | 285.0 | 303.8 | 361.1 | 395.6 | 493.7 | 598.2 | 700.3 | 874.0   |
| 120                    | 11.6 | 12.0 | 12.4  | 12.3  | 172.5 | 191.4 | 212.9 | 229.1 | 245.5 | 265.6 | 287.4 | 307.3 | 327.6 | 386.3 | 428.5 | 530.8 | 641.1 | 752.0 | 979.4   |
| 130                    | 11.8 | 12.2 | 12.5  | 12.7  | 12.3  | 197.9 | 218.3 | 241.6 | 258.8 | 276.2 | 297.8 | 321.3 | 341.1 | 404.1 | 444.7 | 549.0 | 666.1 | 784.7 | 1.022.0 |
| 140                    | 12.1 | 12.4 | 12.7  | 12.8  | 12.7  | 12.0  | 218.3 | 239.5 | 263.9 | 281.7 | 299.6 | 321.9 | 340.4 | 403.5 | 449.8 | 557.8 | 671.7 | 788.7 | 1.032.9 |
| 150                    | 12.2 | 12.4 | 13.0  | 13.0  | 12.7  | 12.4  | 11.4  | 230.3 | 251.6 | 268.6 | 292.4 | 311.4 | 329.3 | 392.2 | 437.4 | 544.9 | 646.0 | 767.8 | 1.004.1 |
| 160                    | 12.4 | 12.9 | 13.2  | 13.3  | 12.8  | 12.4  | 11.8  | 10.5  | 230.0 | 250.3 | 266.3 | 290.2 | 306.2 | 359.3 | 404.4 | 503.9 | 604.8 | 707.8 | 926.2   |
| 170                    | 12.5 | 13.1 | 13.3  | 13.4  | 13.0  | 12.5  | 11.8  | 10.5  | 9.2   | 212.7 | 227.7 | 243.4 | 264.7 | 312.6 | 347.4 | 433.1 | 522.1 | 611.1 | 797.0   |
| 180                    | 12.6 | 13.2 | 13.5  | 13.5  | 13.3  | 12.7  | 11.9  | 10.8  | 9.2   | 7.4   | 172.9 | 184.2 | 196.7 | 235.7 | 260.9 | 328.3 | 392.7 | 461.7 | 607.1   |
| 190                    | 12.8 | 13.4 | 13.7  | 13.6  | 13.5  | 13.0  | 12.1  | 10.9  | 9.5   | 7.5   | 5.4   | 104.3 | 112.5 | 133.6 | 146.5 | 185.3 | 221.7 | 261.9 | 340.5   |
| 200                    | 12.9 | 13.5 | 14.6  | 13.8  | 13.7  | 13.1  | 12.2  | 11.0  | 9.6   | 7.8   | 5.5   | 3.0   |       |       |       |       |       |       |         |
| 230                    | 13.4 | 13.8 | 14.1  | 14.3  | 14.0  | 13.5  | 12.5  | 11.4  | 9.8   | 8.0   | 5.7   | 3.1   |       |       |       |       |       |       |         |
| 250                    | 13.5 | 14.2 | 14.4  | 14.4  | 14.3  | 13.7  | 12.9  | 11.7  | 10.1  | 8.2   | 5.8   | 3.1   |       |       |       |       |       |       |         |
| 300                    | 14.0 | 14.6 | 15.0  | 15.0  | 14.7  | 14.1  | 13.3  | 12.1  | 10.5  | 8.5   | 6.1   | 3.3   |       |       |       |       |       |       |         |
| 350                    | 14.4 | 15.1 | 15.4  | 15.5  | 15.3  | 14.6  | 13.7  | 12.3  | 10.8  | 8.8   | 6.2   | 3.3   |       |       |       |       |       |       |         |
| 400                    | 14.4 | 15.4 | 15.9  | 15.9  | 15.7  | 15.1  | 14.1  | 12.8  | 11.1  | 9.0   | 6.4   | 3.4   |       |       |       |       |       |       |         |
| 500                    | 14.4 | 15.4 | 15.9  | 15.9  | 16.3  | 15.7  | 14.8  | 13.4  | 11.6  | 9.4   | 6.7   | 3.6   |       |       |       |       |       |       |         |

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## Design table

perm.  $F = \text{KN}$  (shown by the orange table)

perm.  $\sigma_m = \text{N/mm}^2$  (shown by the green table)

perm.  $\alpha = 50\%$  (angle of rotation axis at right angles to the smaller bearing side )

Intermediate dimensions may be interpolated

| $\frac{a}{b} = \frac{\text{mm}}{\text{mm}}$ | 80   | 90   | 100  | 110  | 120  | 130   | 140   | 150   | 160   | 170   | 180   | 190   | 200   | 230   | 250   | 300   | 350   | 400   | 500   |
|---|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 80  | 54.3 | 62.6 | 72.5 | 81.1 | 90.5 | 99.3  | 109.7 | 119.0 | 128.5 | 137.6 | 146.9 | 157.5 | 167.1 | 198.9 | 218.7 | 272.5 | 320.0 | 371.0 | 464.0 |
| 90  | 8.5  | 67.7 | 77.0 | 87.5 | 96.3 | 106.2 | 116.9 | 128.5 | 138.8 | 149.3 | 160.1 | 170.3 | 180.7 | 212.8 | 237.7 | 295.0 | 354.6 | 412.6 | 522.0 |
| 100   | 8.7  | 8.4  | 78.0 | 87.9 | 99.0 | 108.2 | 118.7 | 129.9 | 140.4 | 151.1 | 162.0 | 173.1 | 195.0 | 215.6 | 240.0 | 300.4 | 360.3 | 423.0 | 530.0 |
| 110   | 9.1  | 8.6  | 7.8  | 82.0 | 91.6 | 102.5 | 111.4 | 121.5 | 132.5 | 142.0 | 151.0 | 161.4 | 172.1 | 204.5 | 224.0 | 279.6 | 338.7 | 396.6 | 495.0 |
| 120   | 9.2  | 8.8  | 8.0  | 6.8  | 75.5 | 83.7  | 93.1  | 100.2 | 107.4 | 116.2 | 125.7 | 134.4 | 143.3 | 169.0 | 187.5 | 232.2 | 280.5 | 329.0 | 428.5 |
| 130   | 9.4  | 8.9  | 8.3  | 6.9  | 5.2  | 53.1  | 58.6  | 64.8  | 69.5  | 74.1  | 79.9  | 86.2  | 91.6  | 108.4 | 119.4 | 147.3 | 178.8 | 210.6 | 274.3 |
| 140   | 9.5  | 9.1  | 8.3  | 7.2  | 5.4  | 3.1   | 8.6   | 9.4   | 10.3  | 11.0  | 11.7  | 12.6  | 13.3  | 15.8  | 17.6  | 21.9  | 26.3  | 30.9  | 40.5  |
| 150   | 9.8  | 9.3  | 8.5  | 7.2  | 5.5  | 3.2   | 0.4   |       |       |       |       |       |       |       |       |       |       |       |       |
| 160   | 9.9  | 9.5  | 8.7  | 7.4  | 5.6  | 3.3   | 0.4   |       |       |       |       |       |       |       |       |       |       |       |       |
| 170   | 10.0 | 9.6  | 8.8  | 7.5  | 5.6  | 3.3   | 0.5   |       |       |       |       |       |       |       |       |       |       |       |       |
| 180   | 10.1 | 9.8  | 8.9  | 7.6  | 5.7  | 3.4   | 0.5   |       |       |       |       |       |       |       |       |       |       |       |       |
| 190   | 10.2 | 9.9  | 9.0  | 7.6  | 5.8  | 3.4   | 0.5   |       |       |       |       |       |       |       |       |       |       |       |       |
| 200   | 10.4 | 10.0 | 9.1  | 7.7  | 5.9  | 3.5   | 0.5   |       |       |       |       |       |       |       |       |       |       |       |       |
| 230   | 10.4 | 10.0 | 9.8  | 7.8  | 6.0  | 3.5   | 0.5   |       |       |       |       |       |       |       |       |       |       |       |       |
| 250   | 10.8 | 10.3 | 9.4  | 8.1  | 6.1  | 3.6   | 0.5   |       |       |       |       |       |       |       |       |       |       |       |       |
| 300   | 10.9 | 10.6 | 9.6  | 8.1  | 6.2  | 3.7   | 0.5   |       |       |       |       |       |       |       |       |       |       |       |       |
| 350   | 11.4 | 10.9 | 10.0 | 8.5  | 6.5  | 3.8   | 0.5   |       |       |       |       |       |       |       |       |       |       |       |       |
| 400   | 11.4 | 10.9 | 10.0 | 8.5  | 6.5  | 3.8   | 0.5   |       |       |       |       |       |       |       |       |       |       |       |       |
| 400   | 11.6 | 11.5 | 10.6 | 9.0  | 6.9  | 4.1   | 0.6   |       |       |       |       |       |       |       |       |       |       |       |       |
| 500   | 11.6 | 11.5 | 10.6 | 9.0  | 7.1  | 4.2   | 0.6   |       |       |       |       |       |       |       |       |       |       |       |       |

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