

FRICION VALUE μ_{ges} 0,16

Friction value μ_{ges} 0,16

Shank screws with metric ISO medium threads in accordance with DIN ISO 261

| 0,16 | P mm | 4.6 | | 5.6 | | 6.8 | | 8.8 | | 10.9 | | 12.9 | |
|-------|---------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|
| | | F_{sp} N | M_A N-m | F_{sp} N | M_A N-m | F_{sp} N | M_A N-m | F_{sp} N | M_A N-m | F_{sp} N | M_A N-m | F_{sp} N | M_A N-m |
| M 2 | 0,4 | 324 | 0,140 | 405 | 0,175 | 647 | 0,280 | 863 | 0,373 | 1.214 | 0,525 | 1.456 | 0,630 |
| M 2,5 | 0,45 | 539 | 0,289 | 674 | 0,361 | 1.079 | 0,578 | 1.439 | 0,770 | 2.023 | 1,083 | 2.428 | 1,300 |
| M 3 | 0,5 | 810 | 0,517 | 1.013 | 0,647 | 1.620 | 1,035 | 2.161 | 1,380 | 3.038 | 1,940 | 3.646 | 2,328 |
| M 3,5 | 0,6 | 1.086 | 0,811 | 1.358 | 1,014 | 2.173 | 1,622 | 2.897 | 2,163 | 4.074 | 3,042 | 4.889 | 3,650 |
| M 4 | 0,7 | 1.403 | 1,199 | 1.754 | 1,499 | 2.806 | 2,398 | 3.742 | 3,198 | 5.262 | 4,497 | 6.314 | 5,396 |
| M 4,5 | 0,75 | 1.823 | 1,746 | 2.279 | 2,182 | 3.646 | 3,492 | 4.861 | 4,656 | 6.836 | 6,547 | 8.204 | 7,857 |
| M 5 | 0,8 | 2.298 | 2,438 | 2.872 | 3,047 | 4.596 | 4,875 | 6.127 | 6,500 | 8.617 | 9,141 | 10.340 | 10,969 |
| M 6 | 1 | 3.241 | 4,139 | 4.051 | 5,173 | 6.482 | 8,277 | 8.643 | 11,036 | 12.154 | 15,520 | 14.584 | 18,623 |
| M 8 | 1,25 | 5.951 | 10,083 | 7.438 | 12,603 | 11.901 | 20,165 | 15.868 | 26,887 | 22.315 | 37,809 | 26.778 | 45,371 |
| M 10 | 1,5 | 9.477 | 20,01 | 11.847 | 25,02 | 18.955 | 40,03 | 25.273 | 53,37 | 35.540 | 75,05 | 42.648 | 90,06 |
| M 12 | 1,75 | 13.821 | 34,96 | 17.277 | 43,69 | 27.642 | 69,91 | 36.857 | 93,22 | 51.830 | 131,08 | 62.195 | 157,30 |
| M 14 | 2 | 18.982 | 55,93 | 23.728 | 69,91 | 37.964 | 111,86 | 50.619 | 149,15 | 71.183 | 209,74 | 85.419 | 251,69 |
| M 16 | 2 | 26.145 | 87,30 | 32.682 | 109,13 | 52.291 | 174,61 | 69.721 | 232,81 | 98.045 | 327,39 | 117.654 | 392,87 |
| M 18 | 2,5 | 31.755 | 120,08 | 39.694 | 150,10 | 63.510 | 240,15 | 84.680 | 320,20 | 119.081 | 450,29 | 142.897 | 540,34 |
| M 20 | 2,5 | 40.852 | 170,52 | 51.065 | 213,14 | 81.704 | 341,03 | 108.939 | 454,71 | 153.195 | 639,43 | 183.834 | 767,32 |
| M 22 | 2,5 | 51.093 | 233,3 | 63.867 | 291,7 | 102.187 | 466,6 | 136.249 | 622,2 | 191.600 | 875,0 | 229.921 | 1.050,0 |
| M 24 | 3 | 58.827 | 294,7 | 73.534 | 368,3 | 117.654 | 589,3 | 156.872 | 785,7 | 220.601 | 1.104,9 | 264.721 | 1.325,9 |
| M 27 | 3 | 77.519 | 433,9 | 96.899 | 542,4 | 155.038 | 867,9 | 206.717 | 1.157,2 | 290.696 | 1.627,2 | 348.835 | 1.952,7 |
| M 30 | 3,5 | 94.179 | 587,3 | 117.724 | 734,2 | 188.358 | 1.174,6 | 251.144 | 1.566,2 | 353.172 | 2.202,5 | 423.806 | 2.642,9 |
| M 33 | 3,5 | 117.488 | 801,9 | 146.860 | 1.002,3 | 234.977 | 1.603,8 | 313.302 | 2.138,3 | 440.581 | 3.007,0 | 528.697 | 3.608,5 |
| M 36 | 4 | 137.811 | 1.028,6 | 172.264 | 1.285,7 | 275.623 | 2.057,2 | 367.497 | 2.742,9 | 516.793 | 3.857,2 | 620.152 | 4.628,6 |
| M 39 | 4 | 165.738 | 1.335 | 207.172 | 1.668 | 331.475 | 2.669 | 441.967 | 3.559 | 621.516 | 5.005 | 745.819 | 6.006 |
| M 42 | 4,5 | 189.724 | 1.649 | 237.155 | 2.061 | 379.448 | 3.298 | 505.930 | 4.397 | 711.465 | 6.183 | 853.758 | 7.420 |
| M 45 | 4,5 | 222.267 | 2.063 | 277.834 | 2.578 | 444.534 | 4.125 | 592.712 | 5.500 | 833.501 | 7.735 | 1.000.201 | 9.282 |
| M 48 | 5 | 249.916 | 2.479 | 312.395 | 3.099 | 499.833 | 4.958 | 666.444 | 6.610 | 937.186 | 9.296 | 1.124.624 | 11.155 |
| M 52 | 5 | 300.035 | 3.212 | 375.043 | 4.014 | 600.069 | 6.423 | 800.093 | 8.564 | 1.125.130 | 12.043 | 1.350.156 | 14.452 |
| M 56 | 5,5 | 345.954 | 3.992 | 432.442 | 4.990 | 691.908 | 7.984 | 922.544 | 10.645 | 1.297.327 | 14.969 | 1.556.793 | 17.963 |
| M 60 | 5,5 | 404.516 | 4.985 | 505.645 | 6.232 | 809.031 | 9.970 | 1.078.709 | 13.294 | 1.516.934 | 18.695 | 1.820.321 | 22.433 |
| M 64 | 6 | 457.571 | 6.021 | 571.964 | 7.526 | 915.142 | 12.042 | 1.220.189 | 16.056 | 1.715.891 | 22.579 | 2.059.069 | 27.095 |
| M 68 | 6 | 524.576 | 7.315 | 655.720 | 9.143 | 1.049.152 | 14.629 | 1.398.869 | 19.506 | 1.967.160 | 27.430 | 2.360.592 | 32.916 |

Shank screws with metric ISO fine-pitch thread in accordance with DIN ISO 261

| | | | | | | | | | | | | | |
|------|-----|--------|--------|--------|--------|---------|--------|---------|--------|---------|---------|---------|---------|
| M 8 | 1 | 6.536 | 10,91 | 8.170 | 13,64 | 13.073 | 21,83 | 17.430 | 29,10 | 24.511 | 40,92 | 29.413 | 49,11 |
| M 10 | 1 | 10.976 | 22,64 | 13.720 | 28,29 | 21.952 | 45,27 | 29.270 | 60,36 | 41.161 | 84,88 | 49.393 | 101,86 |
| M 12 | 1,5 | 14.707 | 36,83 | 18.383 | 46,04 | 29.413 | 73,66 | 39.218 | 98,22 | 55.150 | 138,12 | 66.180 | 165,74 |
| M 14 | 1,5 | 21.080 | 61,07 | 26.351 | 76,34 | 42.161 | 122,14 | 56.214 | 162,86 | 79.052 | 229,02 | 94.862 | 274,82 |
| M 16 | 1,5 | 28.598 | 94,08 | 35.748 | 117,60 | 57.196 | 188,16 | 76.262 | 250,88 | 107.243 | 352,80 | 128.692 | 423,35 |
| M 18 | 1,5 | 37.260 | 137,20 | 46.575 | 171,50 | 74.519 | 274,40 | 99.359 | 365,87 | 139.724 | 514,51 | 167.669 | 617,41 |
| M 20 | 1,5 | 47.065 | 191,8 | 58.831 | 239,7 | 94.130 | 383,6 | 125.506 | 511,4 | 176.494 | 719,2 | 211.792 | 863,0 |
| M 22 | 1,5 | 58.014 | 259,2 | 72.517 | 324,0 | 116.027 | 518,4 | 154.703 | 691,2 | 217.551 | 971,9 | 261.062 | 1.166,3 |
| M 24 | 1,5 | 70.106 | 340,7 | 87.632 | 425,9 | 140.212 | 681,5 | 186.949 | 908,6 | 262.897 | 1.277,7 | 315.477 | 1.533,3 |

Specifications given without warranty.

Legend

- μ_{ges} = Average friction value for thread and underhead seat
- P = Pitch of the thread
- F_{sp} = Axial pre-tension force in the screw for 90% utilisation of the screw yield point (determined in accordance with the shape-changing-energy hypothesis)
- M_A = Tightening torque during installation

Important remarks

Please make sure to read our information relating to the guideline values of the thread friction values on page 640. Taking into consideration the friction values, the above-specified table values only apply for headless screws (expanding screws generally require lower tightening values). The effective friction diameter in the screw underhead seat was defined as 1.3 x external thread diameter. For this reason, it is only possible to use them in the case of normal shank screws, generally hexagonal-headed and cylindrical-head screws (e.g. DIN EN ISO 4014, 4017, 4764, DIN 7984). When screws of high strengths (8.8 to 12.9) and tensed parts made of "soft" construction materials are used, a verification of the interfacial pressure under the screw head is strongly recommended.

