

TIGHTENING/ TEST TORQUE

Suggested bolt tightening torque in Nm (Newton metres)							Wrench/spanner test torques in accordance with DIN 899 (minimum guaranteed values) Nm						
These torque levels are guideline values for metric standard threads in accordance with DIN ISO 261 and head sizes in accordance with DIN EN ISO 4762, DIN EN ISO 4032, DIN EN ISO 4014, and DIN 931-2, 6912, 7984 und 7990. These produce a 90% utilization of the bolt yield strength. The calculations are based on a friction coefficient of 0.14 (new bolt) without any after treatment, non-lubricated). Please note: in extreme cases, e.g. for bolts lubricated with MoS_2 compound and with cadmium-plated connecting elements on both sides, the tightening torque should be reduced by around 20%.													
							No. 2, 2A, 2B No. 1B, 308, 7	No. 4	No. 6, 1B, 7, 400	No. 25	No. 26 R No. 626	No. 35 A No. 35 B No. 3112	No. 894 No. 895
Tightening values for quality grade as per DIN 267													
4.6 5.6 6.9 8.8 10.9 12.9													
M 2 0,123 0,162 0,314 0,373 0,520 0,628													
M 2.2 0,196 0,265 0,510 0,598 0,843 1,010													
M 2.5 0,284 0,373 0,726 0,863 1,206 1,451													
M 3 0,441 0,588 1,128 1,344 1,883 2,256													
M 3.5 0,677 0,902 1,736 2,060 2,893 3,481													
M 4 1,000 1,344 2,599 3,040 4,315 5,148													
M 5 1,916 2,648 5,099 6,031 8,483 10,200													
M 6 3,432 4,511 8,728 10,300 14,710 17,652													
M 7 5,590 7,453 14,220 17,162 24,517 28,439													
M 8 8,238 10,787 21,575 25,497 35,304 42,168													
M 10 16,67 21,575 42,168 50,014 70,608 85,317													
M 12 28,44 38,246 73,550 87,279 122,60 147,10													
M 14 45,11 60,801 116,70 138,30 194,20 235,40													
M 16 69,63 93,163 178,5 210,80 299,10 357,90													
M 18 95,12 127,50 245,20 289,3 411,90 490,30													
M 20 135,3 180,45 384,10 411,90 578,60 696,30													
M 22 182,4 245,16 470,70 559,00 784,50 941,40													
M 24 230,5 308,91 598,20 711,00 1000 1196													
M 27 343,2 460,90 887,50 1049 1481 1775													
M 30 465,8 622,72 1206 1422 2010 2403													
M 33 632,5 848,30 1628 1932 2716 3266													
M 36 814,0 1089 2099 2481 3491 4197													
M 39 1059 1412 2716 3226 4531 5443													
M 42 1304 1746 3364 3991 5609 6727													
M 45 1638 2177 4207 4992 7012 8414													
M 48 1981 2638 5080 6021 8473 10150													
M 52 2540 3393 6541 7747 10885 13092													
M 56 3168 4227 8149 9650 13582 16279													
M 60 3932 5247 10101 11964 16867 20202													
M 64 4737 6306 12160 14416 20300 24320													

*These sizes are not included in DIN ISO 272

Note:

In reference to the "spanner test torque as per DIN 899" column, we explicitly point out that these are minimum guarantee values. Bolts from M39 in quality grades 4.6, 5.6, 6.9, 8.8, 10.9 and 12.9 are not standardized.

