

BOLT LOAD METRIC (GRADE 10.9)

40% - 99% YIELD



| | | | | |
|------------------------|-----------------------|--------------------|------------------------|---------------------------------|
| Southwest Texas | West Texas | Main Office | Southeast Texas | Central & East Texas |
| 4802 Baldwin Blvd. | 3508 S County Rd 1290 | 12420 Texaco Rd | 2484 W Cardinal #4 | 7900 Rodeo Trl. #500 |
| Corpus Christi 78408 | Odessa, TX 78765 | Houston, TX 77013 | Beaumont, TX 77705 | Mansfield, TX 76063 |
| 361-888-5080 | 432-561-8481 | 713-453-6677 | 409-840-9699 | 682-334-2679 |

BOLT LOADS

| TORQUE GUIDE FOR ISO R898 CLASS 10.9 | | | | | | REQUIRED TORQUE (N-m) | | | | | | | | | | |
|--------------------------------------|---------------------------|-------------------------------------|----------------------|-----------------------|----------------------------------|-----------------------------|-------------------------------------|--------------------------------|---|----------------------|--------------------------|----------------------------------|--------------------------|--|--|--|
| MINIMUM YIELD | | | 940 | | | 136338 p.s.i. | | | (To convert to ft/lbs multiply these torque values x .7376) | | | | | | | |
| BOLT LOAD BASED ON | | | 40 | | | PERCENT YIELD | | | | | | | | | | |
| BOLT SIZE DIA. x P | HEX NUT ACROSS FLAT | STRESS AREA (mm) ² | BOLT LOAD (kN) | BOLT LOAD (LBS) | LoaDISC TS 801 MOLY K=.109 | MOLY DISULFIDE K=.100 | MOLY/LEAD OXIDE/GRAPH. K=.125 | COPPER & GRAPHITE K=.140 | NICKEL & GRAPH. K=.150 | API SA2 K=.157 | MACH'NE OIL K=.200 | DRY STEEL K=.300 K=.300 | PLUG IN (K) K=.300 | | | |
| M20x2.5 | 30 | 245 | 92 | 20,692 | 201 | 184 | 230 | 258 | 276 | 289 | 368 | 552 | 184 | | | |
| M22x2.5 | 32 | 303 | 114 | 25,646 | 274 | 251 | 314 | 351 | 376 | 394 | 502 | 753 | 251 | | | |
| M24x3 | 36 | 353 | 133 | 29,797 | 347 | 318 | 398 | 445 | 477 | 499 | 636 | 954 | 318 | | | |
| M27x3 | 41 | 459 | 173 | 38,833 | 508 | 466 | 583 | 653 | 700 | 732 | 933 | 1,399 | 466 | | | |
| M30x3.5 | 46 | 561 | 211 | 47,386 | 689 | 632 | 790 | 885 | 949 | 993 | 1,265 | 1,897 | 632 | | | |
| M33x3.5 | 50 | 694 | 261 | 58,625 | 938 | 861 | 1,076 | 1,205 | 1,291 | 1,351 | 1,721 | 2,582 | 861 | | | |
| M36x4 | 55 | 817 | 307 | 69,037 | 1,205 | 1,106 | 1,382 | 1,548 | 1,658 | 1,736 | 2,211 | 3,317 | 1,106 | | | |
| M39x4 | 60 | 976 | 367 | 82,479 | 1,560 | 1,431 | 1,789 | 2,003 | 2,146 | 2,247 | 2,862 | 4,293 | 1,431 | | | |
| M42x4.5 | 65 | 1121 | 421 | 94,749 | 1,930 | 1,770 | 2,213 | 2,478 | 2,655 | 2,779 | 3,540 | 5,311 | 1,770 | | | |
| M45x4.5 | 70 | 1306 | 491 | 110,395 | 2,409 | 2,210 | 2,762 | 3,094 | 3,315 | 3,469 | 4,420 | 6,630 | 2,210 | | | |
| M48x5 | 75 | 1473 | 554 | 124,524 | 2,898 | 2,659 | 3,324 | 3,722 | 3,988 | 4,174 | 5,318 | 7,977 | 2,659 | | | |
| M52x5 | 80 | 1758 | 661 | 148,587 | 3,746 | 3,437 | 4,296 | 4,812 | 5,156 | 5,396 | 6,874 | 10,311 | 3,437 | | | |
| M56x5.5 | 85 | 2030 | 763 | 171,594 | 4,659 | 4,275 | 5,343 | 5,984 | 6,412 | 6,711 | 8,549 | 12,824 | 4,275 | | | |
| M60x5.5 | 90 | 2362 | 888 | 199,658 | 5,809 | 5,329 | 6,661 | 7,461 | 7,993 | 8,366 | 10,658 | 15,987 | 5,329 | | | |
| M64x6 | 95 | 2676 | 1,006 | 226,196 | 7,019 | 6,440 | 8,050 | 9,016 | 9,660 | 10,110 | 12,879 | 19,319 | 6,440 | | | |
| M68x6 | 100 | 3055 | 1,149 | 258,258 | 8,515 | 7,812 | 9,765 | 10,937 | 11,718 | 12,265 | 15,624 | 23,436 | 7,812 | | | |
| M72x6 | 105 | 3460 | 1,301 | 292,445 | 10,210 | 9,367 | 11,708 | 13,113 | 14,050 | 14,706 | 18,733 | 28,100 | 9,367 | | | |
| M76x6 | 110 | 3889 | 1,462 | 328,757 | 12,115 | 11,115 | 13,893 | 15,560 | 16,672 | 17,450 | 22,229 | 33,344 | 11,115 | | | |
| M80x6 | 115 | 4344 | 1,633 | 367,193 | 14,243 | 13,067 | 16,334 | 18,294 | 19,601 | 20,516 | 26,135 | 39,202 | 13,067 | | | |
| M90x6 | 130 | 5591 | 2,102 | 472,576 | 20,623 | 18,920 | 23,650 | 26,488 | 28,380 | 29,704 | 37,840 | 56,760 | 18,920 | | | |
| M100x6 | 145 | 6995 | 2,630 | 591,237 | 28,668 | 26,301 | 32,876 | 36,821 | 39,451 | 41,292 | 52,601 | 78,902 | 26,301 | | | |
| M110x6 | 155 | 8556 | 3,217 | 723,174 | 38,571 | 35,387 | 44,233 | 49,541 | 53,080 | 55,557 | 70,773 | 106,160 | 35,387 | | | |
| M125x6 | 180 | 11192 | 4,208 | 945,976 | 57,335 | 52,601 | 65,751 | 73,641 | 78,901 | 82,584 | 105,202 | 157,803 | 52,601 | | | |

| TORQUE GUIDE FOR ISO R898 CLASS 10.9 | | | | | | REQUIRED TORQUE (N-m) | | | | | | | | |
|--------------------------------------|---------------------|-------------------------------|----------------|-----------------|-----------------------------|---|-------------------------------|--------------------------|------------------------|----------------|--------------------|-------------------------|-------------------|--|
| MINIMUM YIELD | | 940 | | 136338 p.s.i. | | (To convert to ft/lbs multiply these torque values x .7376) | | | | | | | | |
| BOLT LOAD BASED ON | | | 50 | PERCENT YIELD | | | | | | | | | | |
| BOLT SIZE DIA. x P | HEX NUT ACROSS FLAT | STRESS AREA (mm) ² | BOLT LOAD (kN) | BOLT LOAD (LBS) | LoadDISC TS 801 MOLY K=.109 | MOLY DISULFIDE K=.100 | MOLY/LEAD OXIDE/GRAPH. K=.125 | COPPER & GRAPHITE K=.140 | NICKEL & GRAPH. K=.150 | API SA2 K=.157 | MACH'NE OIL K=.200 | DRY STEEL K=.300 K=.300 | PLUG IN (K) K=300 | |
| M20x2.5 | 30 | 245 | 115 | 25,865 | 251 | 230 | 288 | 322 | 345 | 361 | 460 | 690 | 230 | |
| M22x2.5 | 32 | 303 | 143 | 32,058 | 342 | 314 | 392 | 439 | 471 | 493 | 627 | 941 | 314 | |
| M24x3 | 36 | 353 | 166 | 37,246 | 433 | 398 | 497 | 557 | 596 | 624 | 795 | 1,193 | 398 | |
| M27x3 | 41 | 459 | 216 | 48,541 | 635 | 583 | 729 | 816 | 875 | 915 | 1,166 | 1,749 | 583 | |
| M30x3.5 | 46 | 561 | 263 | 59,233 | 862 | 790 | 988 | 1,107 | 1,186 | 1,241 | 1,581 | 2,371 | 790 | |
| M33x3.5 | 50 | 694 | 326 | 73,282 | 1,173 | 1,076 | 1,345 | 1,506 | 1,614 | 1,689 | 2,152 | 3,227 | 1,076 | |
| M36x4 | 55 | 817 | 384 | 86,296 | 1,506 | 1,382 | 1,727 | 1,935 | 2,073 | 2,170 | 2,764 | 4,146 | 1,382 | |
| M39x4 | 60 | 976 | 459 | 103,099 | 1,950 | 1,789 | 2,236 | 2,504 | 2,683 | 2,808 | 3,577 | 5,366 | 1,789 | |
| M42x4.5 | 65 | 1121 | 527 | 118,437 | 2,412 | 2,213 | 2,766 | 3,098 | 3,319 | 3,474 | 4,426 | 6,638 | 2,213 | |
| M45x4.5 | 70 | 1306 | 614 | 137,993 | 3,011 | 2,762 | 3,453 | 3,867 | 4,143 | 4,337 | 5,525 | 8,287 | 2,762 | |
| M48x5 | 75 | 1473 | 692 | 155,654 | 3,623 | 3,324 | 4,154 | 4,653 | 4,985 | 5,218 | 6,647 | 9,971 | 3,324 | |
| M52x5 | 80 | 1758 | 826 | 185,734 | 4,683 | 4,296 | 5,370 | 6,015 | 6,445 | 6,745 | 8,593 | 12,889 | 4,296 | |
| M56x5.5 | 85 | 2030 | 954 | 214,493 | 5,824 | 5,343 | 6,679 | 7,481 | 8,015 | 8,389 | 10,686 | 16,030 | 5,343 | |
| M60x5.5 | 90 | 2362 | 1,110 | 249,572 | 7,261 | 6,661 | 8,326 | 9,326 | 9,992 | 10,458 | 13,322 | 19,984 | 6,661 | |
| M64x6 | 95 | 2676 | 1,258 | 282,745 | 8,774 | 8,050 | 10,062 | 11,270 | 12,074 | 12,638 | 16,099 | 24,149 | 8,050 | |
| M68x6 | 100 | 3055 | 1,436 | 322,823 | 10,644 | 9,765 | 12,206 | 13,671 | 14,648 | 15,331 | 19,530 | 29,295 | 9,765 | |
| M72x6 | 105 | 3460 | 1,626 | 365,557 | 12,762 | 11,708 | 14,635 | 16,392 | 17,562 | 18,382 | 23,416 | 35,125 | 11,708 | |
| M76x6 | 110 | 3889 | 1,828 | 410,946 | 15,144 | 13,893 | 17,366 | 19,450 | 20,840 | 21,812 | 27,786 | 41,680 | 13,893 | |
| M80x6 | 115 | 4344 | 2,042 | 458,991 | 17,804 | 16,334 | 20,418 | 22,868 | 24,501 | 25,645 | 32,668 | 49,003 | 16,334 | |
| M90x6 | 130 | 5591 | 2,628 | 590,720 | 25,778 | 23,650 | 29,562 | 33,110 | 35,475 | 37,130 | 47,300 | 70,949 | 23,650 | |
| M100x6 | 145 | 6995 | 3,288 | 739,046 | 35,835 | 32,876 | 41,095 | 46,026 | 49,314 | 51,615 | 65,751 | 98,627 | 32,876 | |
| M110x6 | 155 | 8556 | 4,021 | 903,968 | 48,214 | 44,233 | 55,292 | 61,927 | 66,350 | 69,446 | 88,467 | 132,700 | 44,233 | |
| M125x6 | 180 | 11192 | 5,260 | 1,182,470 | 71,669 | 65,751 | 82,189 | 92,052 | 98,627 | 103,229 | 131,502 | 197,254 | 65,751 | |

| TORQUE GUIDE FOR ISO R898 CLASS 10.9 | | | | | | REQUIRED TORQUE (N-m) | | | | | | | | |
|--------------------------------------|---------------------|-------------------------------|----------------|-----------------|-----------------------------|---|-------------------------------|--------------------------|------------------------|----------------|--------------------|-------------------------|-------------------|--|
| MINIMUM YIELD | | 940 | | 136338 p.s.i. | | (To convert to ft/lbs multiply these torque values x .7376) | | | | | | | | |
| BOLT LOAD BASED ON | | | 60 | PERCENT YIELD | | | | | | | | | | |
| BOLT SIZE DIA. x P | HEX NUT ACROSS FLAT | STRESS AREA (mm) ² | BOLT LOAD (kN) | BOLT LOAD (LBS) | LoadDISC TS 801 MOLY K=.109 | MOLY DISULFIDE K=.100 | MOLY/LEAD OXIDE/GRAPH. K=.125 | COPPER & GRAPHITE K=.140 | NICKEL & GRAPH. K=.150 | API SA2 K=.157 | MACH'NE OIL K=.200 | DRY STEEL K=.300 K=.300 | PLUG IN (K) K=300 | |
| M20x2.5 | 30 | 245 | 138 | 31,039 | 301 | 276 | 345 | 387 | 414 | 434 | 552 | 828 | 276 | |
| M22x2.5 | 32 | 303 | 171 | 38,469 | 410 | 376 | 471 | 527 | 565 | 591 | 753 | 1,129 | 376 | |
| M24x3 | 36 | 353 | 199 | 44,696 | 520 | 477 | 596 | 668 | 716 | 749 | 954 | 1,432 | 477 | |
| M27x3 | 41 | 459 | 259 | 58,250 | 763 | 700 | 875 | 979 | 1,049 | 1,098 | 1,399 | 2,099 | 700 | |
| M30x3.5 | 46 | 561 | 316 | 71,079 | 1,034 | 949 | 1,186 | 1,328 | 1,423 | 1,489 | 1,897 | 2,846 | 949 | |
| M33x3.5 | 50 | 694 | 391 | 87,938 | 1,407 | 1,291 | 1,614 | 1,807 | 1,936 | 2,027 | 2,582 | 3,873 | 1,291 | |
| M36x4 | 55 | 817 | 461 | 103,555 | 1,808 | 1,658 | 2,073 | 2,322 | 2,488 | 2,604 | 3,317 | 4,975 | 1,658 | |
| M39x4 | 60 | 976 | 550 | 123,719 | 2,340 | 2,146 | 2,683 | 3,005 | 3,220 | 3,370 | 4,293 | 6,439 | 2,146 | |
| M42x4.5 | 65 | 1121 | 632 | 142,124 | 2,894 | 2,655 | 3,319 | 3,717 | 3,983 | 4,169 | 5,311 | 7,966 | 2,655 | |
| M45x4.5 | 70 | 1306 | 737 | 165,592 | 3,613 | 3,315 | 4,143 | 4,641 | 4,972 | 5,204 | 6,630 | 9,944 | 3,315 | |
| M48x5 | 75 | 1473 | 831 | 186,785 | 4,347 | 3,988 | 4,985 | 5,584 | 5,982 | 6,262 | 7,977 | 11,965 | 3,988 | |
| M52x5 | 80 | 1758 | 991 | 222,881 | 5,620 | 5,156 | 6,445 | 7,218 | 7,733 | 8,094 | 10,311 | 15,467 | 5,156 | |
| M56x5.5 | 85 | 2030 | 1,145 | 257,392 | 6,989 | 6,412 | 8,015 | 8,977 | 9,618 | 10,067 | 12,824 | 19,236 | 6,412 | |
| M60x5.5 | 90 | 2362 | 1,332 | 299,486 | 8,713 | 7,993 | 9,992 | 11,191 | 11,990 | 12,550 | 15,987 | 23,980 | 7,993 | |
| M64x6 | 95 | 2676 | 1,509 | 339,293 | 10,529 | 9,660 | 12,074 | 13,523 | 14,489 | 15,166 | 19,319 | 28,979 | 9,660 | |
| M68x6 | 100 | 3055 | 1,723 | 387,388 | 12,773 | 11,718 | 14,648 | 16,405 | 17,577 | 18,397 | 23,436 | 35,154 | 11,718 | |
| M72x6 | 105 | 3460 | 1,951 | 438,668 | 15,314 | 14,050 | 17,562 | 19,670 | 21,075 | 22,058 | 28,100 | 42,150 | 14,050 | |
| M76x6 | 110 | 3889 | 2,194 | 493,135 | 18,172 | 16,672 | 20,840 | 23,341 | 25,008 | 26,175 | 33,344 | 50,016 | 16,672 | |
| M80x6 | 115 | 4344 | 2,450 | 550,789 | 21,365 | 19,601 | 24,501 | 27,441 | 29,402 | 30,774 | 39,202 | 58,803 | 19,601 | |
| M90x6 | 130 | 5591 | 3,153 | 708,864 | 30,934 | 28,380 | 35,475 | 39,732 | 42,570 | 44,556 | 56,760 | 85,139 | 28,380 | |
| M100x6 | 145 | 6995 | 3,945 | 886,855 | 43,001 | 39,451 | 49,314 | 55,231 | 59,176 | 61,938 | 78,902 | 118,353 | 39,451 | |
| M110x6 | 155 | 8556 | 4,825 | 1,084,762 | 57,857 | 53,080 | 66,350 | 74,312 | 79,620 | 83,336 | 106,160 | 159,240 | 53,080 | |
| M125x6 | 180 | 11192 | 6,312 | 1,418,964 | 86,003 | 78,901 | 98,627 | 110,462 | 118,352 | 123,875 | 157,803 | 236,704 | 78,901 | |

| TORQUE GUIDE FOR ISO R898 CLASS 10.9 | | | | | | REQUIRED TORQUE (N-m) | | | | | | | | |
|--------------------------------------|---------------------|-------------------------------|----------------|-----------------|-----------------------------|---|-------------------------------|--------------------------|------------------------|----------------|--------------------|-------------------------|-------------------|--|
| MINIMUM YIELD | | 940 | | 136338 p.s.i. | | | | | | | | | | |
| BOLT LOAD BASED ON | | | 70 | PERCENT YIELD | | (To convert to ft/lbs multiply these torque values x .7376) | | | | | | | | |
| BOLT SIZE DIA. x P | HEX NUT ACROSS FLAT | STRESS AREA (mm) ² | BOLT LOAD (kN) | BOLT LOAD (LBS) | LoadDISC TS 801 MOLY K=.109 | MOLY DISULFIDE K=.100 | MOLY/LEAD OXIDE/GRAPH. K=.125 | COPPER & GRAPHITE K=.140 | NICKEL & GRAPH. K=.150 | API SA2 K=.157 | MACH'NE OIL K=.200 | DRY STEEL K=.300 K=.300 | PLUG IN (K) K=300 | |
| M20x2.5 | 30 | 245 | 161 | 36,212 | 351 | 322 | 403 | 451 | 483 | 506 | 644 | 967 | 322 | |
| M22x2.5 | 32 | 303 | 200 | 44,881 | 479 | 439 | 549 | 615 | 659 | 690 | 878 | 1,318 | 439 | |
| M24x3 | 36 | 353 | 232 | 52,145 | 607 | 557 | 696 | 779 | 835 | 874 | 1,113 | 1,670 | 557 | |
| M27x3 | 41 | 459 | 302 | 67,958 | 890 | 816 | 1,020 | 1,143 | 1,224 | 1,281 | 1,632 | 2,449 | 816 | |
| M30x3.5 | 46 | 561 | 369 | 82,926 | 1,206 | 1,107 | 1,383 | 1,549 | 1,660 | 1,737 | 2,213 | 3,320 | 1,107 | |
| M33x3.5 | 50 | 694 | 456 | 102,594 | 1,642 | 1,506 | 1,883 | 2,108 | 2,259 | 2,365 | 3,012 | 4,518 | 1,506 | |
| M36x4 | 55 | 817 | 537 | 120,814 | 2,109 | 1,935 | 2,418 | 2,709 | 2,902 | 3,038 | 3,870 | 5,804 | 1,935 | |
| M39x4 | 60 | 976 | 642 | 144,338 | 2,729 | 2,504 | 3,130 | 3,506 | 3,756 | 3,931 | 5,008 | 7,512 | 2,504 | |
| M42x4.5 | 65 | 1121 | 738 | 165,811 | 3,377 | 3,098 | 3,872 | 4,337 | 4,647 | 4,864 | 6,196 | 9,294 | 3,098 | |
| M45x4.5 | 70 | 1306 | 859 | 193,191 | 4,215 | 3,867 | 4,834 | 5,414 | 5,801 | 6,072 | 7,735 | 11,602 | 3,867 | |
| M48x5 | 75 | 1473 | 969 | 217,916 | 5,072 | 4,653 | 5,816 | 6,514 | 6,980 | 7,305 | 9,306 | 13,959 | 4,653 | |
| M52x5 | 80 | 1758 | 1,157 | 260,027 | 6,556 | 6,015 | 7,519 | 8,421 | 9,022 | 9,443 | 12,030 | 18,045 | 6,015 | |
| M56x5.5 | 85 | 2030 | 1,336 | 300,290 | 8,154 | 7,481 | 9,351 | 10,473 | 11,221 | 11,744 | 14,961 | 22,442 | 7,481 | |
| M60x5.5 | 90 | 2362 | 1,554 | 349,401 | 10,165 | 9,326 | 11,657 | 13,056 | 13,988 | 14,641 | 18,651 | 27,977 | 9,326 | |
| M64x6 | 95 | 2676 | 1,761 | 395,842 | 12,284 | 11,270 | 14,087 | 15,777 | 16,904 | 17,693 | 22,539 | 33,809 | 11,270 | |
| M68x6 | 100 | 3055 | 2,010 | 451,952 | 14,902 | 13,671 | 17,089 | 19,140 | 20,507 | 21,464 | 27,342 | 41,013 | 13,671 | |
| M72x6 | 105 | 3460 | 2,277 | 511,780 | 17,867 | 16,392 | 20,489 | 22,948 | 24,587 | 25,735 | 32,783 | 49,175 | 16,392 | |
| M76x6 | 110 | 3889 | 2,559 | 575,325 | 21,201 | 19,450 | 24,313 | 27,231 | 29,176 | 30,537 | 38,901 | 58,351 | 19,450 | |
| M80x6 | 115 | 4344 | 2,858 | 642,587 | 24,926 | 22,868 | 28,585 | 32,015 | 34,302 | 35,903 | 45,736 | 68,604 | 22,868 | |
| M90x6 | 130 | 5591 | 3,679 | 827,008 | 36,090 | 33,110 | 41,387 | 46,354 | 49,665 | 51,982 | 66,220 | 99,329 | 33,110 | |
| M100x6 | 145 | 6995 | 4,603 | 1,034,664 | 50,168 | 46,026 | 57,532 | 64,436 | 69,039 | 72,261 | 92,052 | 138,078 | 46,026 | |
| M110x6 | 155 | 8556 | 5,630 | 1,265,555 | 67,500 | 61,927 | 77,408 | 86,697 | 92,890 | 97,225 | 123,853 | 185,780 | 61,927 | |
| M125x6 | 180 | 11192 | 7,364 | 1,655,458 | 100,336 | 92,052 | 115,065 | 128,872 | 138,078 | 144,521 | 184,103 | 276,155 | 92,052 | |

| TORQUE GUIDE FOR ISO R898 CLASS 10.9 | | | | | | REQUIRED TORQUE (N-m) | | | | | | | | |
|--------------------------------------|---------------------|-------------------------------|----------------|-----------------|-----------------------------|---|-------------------------------|--------------------------|------------------------|----------------|--------------------|-------------------------|-------------------|--|
| MINIMUM YIELD | | 940 | | 136338 p.s.i. | | | | | | | | | | |
| BOLT LOAD BASED ON | | | 80 | PERCENT YIELD | | (To convert to ft/lbs multiply these torque values x .7376) | | | | | | | | |
| BOLT SIZE DIA. x P | HEX NUT ACROSS FLAT | STRESS AREA (mm) ² | BOLT LOAD (kN) | BOLT LOAD (LBS) | LoadDISC TS 801 MOLY K=.109 | MOLY DISULFIDE K=.100 | MOLY/LEAD OXIDE/GRAPH. K=.125 | COPPER & GRAPHITE K=.140 | NICKEL & GRAPH. K=.150 | API SA2 K=.157 | MACH'NE OIL K=.200 | DRY STEEL K=.300 K=.300 | PLUG IN (K) K=300 | |
| M20x2.5 | 30 | 245 | 184 | 41,385 | 401 | 368 | 460 | 515 | 552 | 578 | 736 | 1,105 | 368 | |
| M22x2.5 | 32 | 303 | 228 | 51,292 | 547 | 502 | 627 | 703 | 753 | 788 | 1,004 | 1,506 | 502 | |
| M24x3 | 36 | 353 | 265 | 59,594 | 693 | 636 | 795 | 891 | 954 | 999 | 1,272 | 1,909 | 636 | |
| M27x3 | 41 | 459 | 345 | 77,666 | 1,017 | 933 | 1,166 | 1,306 | 1,399 | 1,465 | 1,866 | 2,798 | 933 | |
| M30x3.5 | 46 | 561 | 422 | 94,772 | 1,379 | 1,265 | 1,581 | 1,771 | 1,897 | 1,986 | 2,530 | 3,794 | 1,265 | |
| M33x3.5 | 50 | 694 | 522 | 117,251 | 1,876 | 1,721 | 2,152 | 2,410 | 2,582 | 2,702 | 3,442 | 5,164 | 1,721 | |
| M36x4 | 55 | 817 | 614 | 138,074 | 2,410 | 2,211 | 2,764 | 3,096 | 3,317 | 3,471 | 4,422 | 6,633 | 2,211 | |
| M39x4 | 60 | 976 | 734 | 164,958 | 3,119 | 2,862 | 3,577 | 4,007 | 4,293 | 4,493 | 5,724 | 8,585 | 2,862 | |
| M42x4.5 | 65 | 1121 | 843 | 189,499 | 3,859 | 3,540 | 4,426 | 4,957 | 5,311 | 5,559 | 7,081 | 10,621 | 3,540 | |
| M45x4.5 | 70 | 1306 | 982 | 220,789 | 4,817 | 4,420 | 5,525 | 6,188 | 6,630 | 6,939 | 8,839 | 13,259 | 4,420 | |
| M48x5 | 75 | 1473 | 1,108 | 249,047 | 5,796 | 5,318 | 6,647 | 7,445 | 7,977 | 8,349 | 10,635 | 15,953 | 5,318 | |
| M52x5 | 80 | 1758 | 1,322 | 297,174 | 7,493 | 6,874 | 8,593 | 9,624 | 10,311 | 10,792 | 13,748 | 20,622 | 6,874 | |
| M56x5.5 | 85 | 2030 | 1,527 | 343,189 | 9,319 | 8,549 | 10,686 | 11,969 | 12,824 | 13,422 | 17,098 | 25,648 | 8,549 | |
| M60x5.5 | 90 | 2362 | 1,776 | 399,315 | 11,617 | 10,658 | 13,322 | 14,921 | 15,987 | 16,733 | 21,316 | 31,974 | 10,658 | |
| M64x6 | 95 | 2676 | 2,012 | 452,391 | 14,039 | 12,879 | 16,099 | 18,031 | 19,319 | 20,221 | 25,759 | 38,638 | 12,879 | |
| M68x6 | 100 | 3055 | 2,298 | 516,517 | 17,030 | 15,624 | 19,530 | 21,874 | 23,436 | 24,530 | 31,248 | 46,873 | 15,624 | |
| M72x6 | 105 | 3460 | 2,602 | 584,891 | 20,419 | 18,733 | 23,416 | 26,226 | 28,100 | 29,411 | 37,466 | 56,199 | 18,733 | |
| M76x6 | 110 | 3889 | 2,925 | 657,514 | 24,230 | 22,229 | 27,786 | 31,121 | 33,344 | 34,900 | 44,458 | 66,687 | 22,229 | |
| M80x6 | 115 | 4344 | 3,267 | 734,385 | 28,487 | 26,135 | 32,668 | 36,589 | 39,202 | 41,031 | 52,269 | 78,404 | 26,135 | |
| M90x6 | 130 | 5591 | 4,204 | 945,152 | 41,245 | 37,840 | 47,300 | 52,976 | 56,760 | 59,408 | 75,679 | 113,519 | 37,840 | |
| M100x6 | 145 | 6995 | 5,260 | 1,182,473 | 57,335 | 52,601 | 65,751 | 73,642 | 78,902 | 82,584 | 105,202 | 157,803 | 52,601 | |
| M110x6 | 155 | 8556 | 6,434 | 1,446,349 | 77,143 | 70,773 | 88,467 | 99,083 | 106,160 | 111,114 | 141,547 | 212,320 | 70,773 | |
| M125x6 | 180 | 11192 | 8,416 | 1,891,951 | 114,670 | 105,202 | 131,502 | 147,283 | 157,803 | 165,167 | 210,404 | 315,606 | 105,202 | |

| TORQUE GUIDE FOR ISO R898 CLASS 10.9 | | | | | | REQUIRED TORQUE (N-m) | | | | | | | | | |
|--------------------------------------|---------------------|-------------------------------|----------------|-----------------|----------------------------|---|-------------------------------|--------------------------|------------------------|----------------|--------------------|-------------------------|--------------------|--|--|
| MINIMUM YIELD | | 940 | | 136338 p.s.i. | | (To convert to ft/lbs multiply these torque values x .7376) | | | | | | | | | |
| BOLT LOAD BASED ON | | | 90 | PERCENT YIELD | | | | | | | | | | | |
| BOLT SIZE DIA. x P | HEX NUT ACROSS FLAT | STRESS AREA (mm) ² | BOLT LOAD (kN) | BOLT LOAD (LBS) | LoaDISC TS 801 MOLY K=.109 | MOLY DISULFIDE K=.100 | MOLY/LEAD OXIDE/GRAPH. K=.125 | COPPER & GRAPHITE K=.140 | NICKEL & GRAPH. K=.150 | API SA2 K=.157 | MACH'NE OIL K=.200 | DRY STEEL K=.300 K=.300 | PLUG IN (K) K=.300 | | |
| | | | | | | | | | | | | | 0.1 | | |
| M20x2.5 | 30 | 245 | 207 | 46,558 | 451 | 414 | 518 | 580 | 621 | 650 | 828 | 1,243 | 414 | | |
| M22x2.5 | 32 | 303 | 257 | 57,704 | 616 | 565 | 706 | 791 | 847 | 887 | 1,129 | 1,694 | 565 | | |
| M24x3 | 36 | 353 | 298 | 67,043 | 780 | 716 | 895 | 1,002 | 1,074 | 1,124 | 1,432 | 2,147 | 716 | | |
| M27x3 | 41 | 459 | 389 | 87,375 | 1,144 | 1,049 | 1,312 | 1,469 | 1,574 | 1,648 | 2,099 | 3,148 | 1,049 | | |
| M30x3.5 | 46 | 561 | 474 | 106,619 | 1,551 | 1,423 | 1,779 | 1,992 | 2,134 | 2,234 | 2,846 | 4,269 | 1,423 | | |
| M33x3.5 | 50 | 694 | 587 | 131,907 | 2,111 | 1,936 | 2,420 | 2,711 | 2,905 | 3,040 | 3,873 | 5,809 | 1,936 | | |
| M36x4 | 55 | 817 | 691 | 155,333 | 2,711 | 2,488 | 3,109 | 3,483 | 3,731 | 3,905 | 4,975 | 7,463 | 2,488 | | |
| M39x4 | 60 | 976 | 826 | 185,578 | 3,509 | 3,220 | 4,024 | 4,507 | 4,829 | 5,055 | 6,439 | 9,659 | 3,220 | | |
| M42x4.5 | 65 | 1121 | 948 | 213,186 | 4,341 | 3,983 | 4,979 | 5,576 | 5,975 | 6,253 | 7,966 | 11,949 | 3,983 | | |
| M45x4.5 | 70 | 1306 | 1,105 | 248,388 | 5,420 | 4,972 | 6,215 | 6,961 | 7,458 | 7,806 | 9,944 | 14,917 | 4,972 | | |
| M48x5 | 75 | 1473 | 1,246 | 280,178 | 6,521 | 5,982 | 7,478 | 8,375 | 8,974 | 9,392 | 11,965 | 17,947 | 5,982 | | |
| M52x5 | 80 | 1758 | 1,487 | 334,321 | 8,429 | 7,733 | 9,667 | 10,827 | 11,600 | 12,141 | 15,467 | 23,200 | 7,733 | | |
| M56x5.5 | 85 | 2030 | 1,717 | 386,087 | 10,483 | 9,618 | 12,022 | 13,465 | 14,427 | 15,100 | 19,236 | 28,854 | 9,618 | | |
| M60x5.5 | 90 | 2362 | 1,998 | 449,230 | 13,069 | 11,990 | 14,988 | 16,786 | 17,985 | 18,824 | 23,980 | 35,970 | 11,990 | | |
| M64x6 | 95 | 2676 | 2,264 | 508,940 | 15,793 | 14,489 | 18,112 | 20,285 | 21,734 | 22,748 | 28,979 | 43,468 | 14,489 | | |
| M68x6 | 100 | 3055 | 2,585 | 581,081 | 19,159 | 17,577 | 21,971 | 24,608 | 26,366 | 27,596 | 35,154 | 52,732 | 17,577 | | |
| M72x6 | 105 | 3460 | 2,927 | 658,002 | 22,972 | 21,075 | 26,344 | 29,505 | 31,612 | 33,087 | 42,150 | 63,224 | 21,075 | | |
| M76x6 | 110 | 3889 | 3,290 | 739,703 | 27,258 | 25,008 | 31,260 | 35,011 | 37,512 | 39,262 | 50,016 | 75,023 | 25,008 | | |
| M80x6 | 115 | 4344 | 3,675 | 826,183 | 32,048 | 29,402 | 36,752 | 41,162 | 44,102 | 46,160 | 58,803 | 88,205 | 29,402 | | |
| M90x6 | 130 | 5591 | 4,730 | 1,063,296 | 46,401 | 42,570 | 53,212 | 59,598 | 63,855 | 66,834 | 85,139 | 127,709 | 42,570 | | |
| M100x6 | 145 | 6995 | 5,918 | 1,330,283 | 64,502 | 59,176 | 73,970 | 82,847 | 88,764 | 92,907 | 118,353 | 177,529 | 59,176 | | |
| M110x6 | 155 | 8556 | 7,238 | 1,627,142 | 86,786 | 79,620 | 99,525 | 111,468 | 119,430 | 125,003 | 159,240 | 238,860 | 79,620 | | |
| M125x6 | 180 | 11192 | 9,468 | 2,128,445 | 129,004 | 118,352 | 147,940 | 165,693 | 177,528 | 185,813 | 236,704 | 355,057 | 118,352 | | |

| TORQUE GUIDE FOR ISO R898 CLASS 10.9 | | | | | | REQUIRED TORQUE (N-m) | | | | | | | | | |
|--------------------------------------|---------------------|-------------------------------|----------------|-----------------|----------------------------|---|-------------------------------|--------------------------|------------------------|----------------|--------------------|-------------------------|--------------------|--|--|
| MINIMUM YIELD | | 940 | | 136338 p.s.i. | | (To convert to ft/lbs multiply these torque values x .7376) | | | | | | | | | |
| BOLT LOAD BASED ON | | | 99 | PERCENT YIELD | | | | | | | | | | | |
| BOLT SIZE DIA. x P | HEX NUT ACROSS FLAT | STRESS AREA (mm) ² | BOLT LOAD (kN) | BOLT LOAD (LBS) | LoaDISC TS 801 MOLY K=.109 | MOLY DISULFIDE K=.100 | MOLY/LEAD OXIDE/GRAPH. K=.125 | COPPER & GRAPHITE K=.140 | NICKEL & GRAPH. K=.150 | API SA2 K=.157 | MACH'NE OIL K=.200 | DRY STEEL K=.300 K=.300 | PLUG IN (K) K=.300 | | |
| | | | | | | | | | | | | | 0.1 | | |
| M20x2.5 | 30 | 245 | 228 | 51,214 | 497 | 456 | 570 | 638 | 683 | 715 | 911 | 1,367 | 456 | | |
| M22x2.5 | 32 | 303 | 282 | 63,474 | 677 | 621 | 776 | 870 | 932 | 975 | 1,242 | 1,864 | 621 | | |
| M24x3 | 36 | 353 | 328 | 73,748 | 858 | 787 | 984 | 1,102 | 1,181 | 1,236 | 1,575 | 2,362 | 787 | | |
| M27x3 | 41 | 459 | 428 | 96,112 | 1,258 | 1,154 | 1,443 | 1,616 | 1,732 | 1,812 | 2,309 | 3,463 | 1,154 | | |
| M30x3.5 | 46 | 561 | 522 | 117,280 | 1,706 | 1,565 | 1,956 | 2,191 | 2,348 | 2,457 | 3,130 | 4,695 | 1,565 | | |
| M33x3.5 | 50 | 694 | 645 | 145,098 | 2,322 | 2,130 | 2,662 | 2,982 | 3,195 | 3,344 | 4,260 | 6,390 | 2,130 | | |
| M36x4 | 55 | 817 | 760 | 170,866 | 2,983 | 2,736 | 3,420 | 3,831 | 4,104 | 4,296 | 5,473 | 8,209 | 2,736 | | |
| M39x4 | 60 | 976 | 908 | 204,136 | 3,860 | 3,542 | 4,427 | 4,958 | 5,312 | 5,560 | 7,083 | 10,625 | 3,542 | | |
| M42x4.5 | 65 | 1121 | 1,043 | 234,504 | 4,776 | 4,381 | 5,477 | 6,134 | 6,572 | 6,879 | 8,763 | 13,144 | 4,381 | | |
| M45x4.5 | 70 | 1306 | 1,215 | 273,227 | 5,962 | 5,469 | 6,837 | 7,657 | 8,204 | 8,587 | 10,939 | 16,408 | 5,469 | | |
| M48x5 | 75 | 1473 | 1,371 | 308,196 | 7,173 | 6,581 | 8,226 | 9,213 | 9,871 | 10,332 | 13,161 | 19,742 | 6,581 | | |
| M52x5 | 80 | 1758 | 1,636 | 367,753 | 9,272 | 8,507 | 10,633 | 11,909 | 12,760 | 13,356 | 17,013 | 25,520 | 8,507 | | |
| M56x5.5 | 85 | 2030 | 1,889 | 424,696 | 11,532 | 10,580 | 13,225 | 14,811 | 15,869 | 16,610 | 21,159 | 31,739 | 10,580 | | |
| M60x5.5 | 90 | 2362 | 2,198 | 494,152 | 14,376 | 13,189 | 16,486 | 18,465 | 19,784 | 20,707 | 26,378 | 39,567 | 13,189 | | |
| M64x6 | 95 | 2676 | 2,490 | 559,834 | 17,373 | 15,938 | 19,923 | 22,314 | 23,908 | 25,023 | 31,877 | 47,815 | 15,938 | | |
| M68x6 | 100 | 3055 | 2,843 | 639,189 | 21,075 | 19,335 | 24,169 | 27,069 | 29,002 | 30,356 | 38,670 | 58,005 | 19,335 | | |
| M72x6 | 105 | 3460 | 3,220 | 723,802 | 25,269 | 23,182 | 28,978 | 32,455 | 34,773 | 36,396 | 46,365 | 69,547 | 23,182 | | |
| M76x6 | 110 | 3889 | 3,620 | 813,673 | 29,984 | 27,509 | 34,386 | 38,512 | 41,263 | 43,188 | 55,017 | 82,526 | 27,509 | | |
| M80x6 | 115 | 4344 | 4,043 | 908,802 | 35,252 | 32,342 | 40,427 | 45,278 | 48,513 | 50,776 | 64,683 | 97,025 | 32,342 | | |
| M90x6 | 130 | 5591 | 5,203 | 1,169,626 | 51,041 | 46,827 | 58,533 | 65,557 | 70,240 | 73,518 | 93,653 | 140,480 | 46,827 | | |
| M100x6 | 145 | 6995 | 6,509 | 1,463,311 | 70,952 | 65,094 | 81,367 | 91,131 | 97,641 | 102,197 | 130,188 | 195,282 | 65,094 | | |
| M110x6 | 155 | 8556 | 7,962 | 1,789,857 | 95,464 | 87,582 | 109,477 | 122,615 | 131,373 | 137,504 | 175,164 | 262,746 | 87,582 | | |
| M125x6 | 180 | 11192 | 10,415 | 2,341,290 | 141,904 | 130,187 | 162,734 | 182,262 | 195,281 | 204,394 | 260,375 | 390,562 | 130,187 | | |