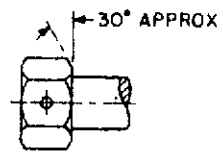


SEE NOTE 7



OPTIONAL DESIGN

REVISION: AV, IS, AT, MI, ML, NSA, OS, 11
USER: AS, ME, GL, MC, YD

TABLE I

| NOMINAL SIZE | | 1/4 | 5/16 | 3/8 | 7/16 | 1/2 | 5/8 | 3/4 | 7/8 | 1 |
|----------------------------|------------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------|------------------|------------------|
| B THREAD | UNF-2A | 28 | 24 | 24 | 20 | 20 | 18 | 16 | 14 | 12 |
| D BODY DIAMETER | MAX MIN | .2500 .2450 | .3125 .3065 | .3750 .3690 | .4375 .4305 | .5000 .4930 | .6250 .6170 | .7500 .7410 | .8750 .8660 | 1.0000 .9900 |
| F WIDTH ACROSS FLATS | MAX MIN | .4475 .4380 | .5000 .4900 | .5625 .5530 | .6250 .6120 | .7500 .7360 | .9375 .9220 | 1.1250 1.1000 | 1.3125 1.2850 | 1.5000 1.4690 |
| G WIDTH ACROSS CORNERS | MAX MIN | .505 .465 | .577 .557 | .650 .625 | .722 .699 | .806 .840 | 1.083 1.051 | 1.299 1.254 | 1.516 1.465 | 1.732 1.675 |
| H HEAD HEIGHT | MAX MIN | .163 .150 | .211 .195 | .243 .226 | .291 .272 | .323 .302 | .403 .378 | .483 .455 | .563 .531 | .627 .591 |
| 1/2 H | MAX MIN | .0815 .075 | .1055 .098 | .1215 .113 | .1455 .136 | .1615 .151 | .2015 .189 | .2445 .228 | .2815 .260 | .3335 .296 |
| J HOLE DIAMETER | + .006 - .002 | .0625 | .0625 | .0625 | .0625 | .094 | .094 | .094 | .125 | .125 |
| R RADIUS | MAX MIN | .025 .015 | .025 .015 | .025 .015 | .025 .015 | .025 .015 | .045 .020 | .045 .020 | .065 .040 | .095 .060 |
| MIN TENSILE STRENGTH - LBS | | 4,350 | 6,950 | 10,500 | 14,200 | 19,200 | 30,700 | 44,800 | 61,100 | 79,600 |

| L LENGTH | TOLERANCE | | DASH NO. | DASH NO. (Plain only) | DASH NO. | DASH NO. (Plain only) | DASH NO. | DASH NO. | DASH NO. | DASH NO. (Plain only) | DASH NO. |
|----------|--------------------|-------------------|----------|-----------------------|----------|-----------------------|----------|----------|----------|-----------------------|----------|
| | SIZE 3/4 AND UNDER | SIZE 7/8 AND OVER | | | | | | | | | |
| .375 | +0 -.011 | --- | 301 | 327 | | | | | | | |
| .438 | | | 302 | 328 | | | | | | | |
| .500 | | | 303 | 329 | 355 | | | | | | |
| .562 | | | 304 | 330 | 356 | | | | | | |
| .625 | | | 305 | 331 | 357 | | | | | | |
| .750 | | | 306 | 332 | 358 | 384 | 410 | 433 | | | |
| .875 | | | 307 | 333 | 359 | 385 | 411 | 434 | | | |
| 1.000 | | | 308 | 334 | 360 | 386 | 412 | 435 | 457 | | |
| 1.250 | +0 -.062 | +0 -.125 | 309 | 335 | 361 | 357 | 413 | 436 | 458 | 482 | 506 |
| 1.500 | | | 310 | 336 | 362 | 358 | 414 | 437 | 459 | 483 | 507 |
| 1.750 | | | 311 | 337 | 363 | 359 | 415 | 438 | 460 | 484 | 508 |
| 2.000 | | | 312 | 338 | 364 | 360 | 416 | 439 | 461 | 485 | 509 |
| 2.250 | +0 -.094 | +0 -.168 | 313 | 339 | 365 | 361 | 417 | 440 | 462 | 486 | 510 |
| 2.500 | | | 314 | 340 | 366 | 362 | 418 | 441 | 463 | 487 | 511 |
| 2.750 | | | 315 | 341 | 367 | 363 | 419 | 442 | 464 | 488 | 512 |
| 3.000 | | | 316 | 342 | 368 | 364 | 420 | 443 | 465 | 489 | 513 |
| 3.250 | | | 317 | 343 | 369 | 365 | 421 | 444 | 466 | 490 | 514 |
| 3.500 | | | 318 | 344 | 370 | 366 | 422 | 445 | 467 | 491 | 515 |
| 3.750 | | | 319 | 345 | 371 | 367 | 423 | 446 | 468 | 492 | 516 |
| 4.000 | | | 320 | 346 | 372 | 368 | 424 | 447 | 469 | 493 | 517 |
| 4.250 | | | 321 | 347 | 373 | 369 | 425 | 448 | 470 | 494 | 518 |
| 4.500 | | | 322 | 348 | 374 | 370 | 426 | 449 | 471 | 495 | 519 |
| 4.750 | | | 323 | 349 | 375 | 371 | 427 | 450 | 472 | 496 | 520 |
| 5.000 | | | 324 | 350 | 376 | 372 | 428 | 451 | 473 | 497 | 521 |
| 6.000 | | | | | 429 | 452 | 474 | 498 | 522 | | |
| | | | | | 430 | 453 | 475 | 499 | 523 | | |

NOTE: For notes see sheet 2.

For changes see sheets 1 and 2.

| | | |
|---------------------------|---|-------------------|
| P.A. No. | TITLE | MILITARY STANDARD |
| Other Cues SH | SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT), HEAD DRILLED FOR LOCKING WIRE, STEEL, GRADE 5, CADMIUM PLATED, UNF-2A, PLAIN AND SELF-LOCKING (E) | MS 51096 |
| PROCUREMENT SPECIFICATION | SUPERSEDES | SHEET 1 OF 2 |
| | MS51094, MS51094.1, MS51094.2, MS51094.3, MS51094.4, MS51094.5, MS51094.6, MS51094.7, MS51094.8, MS51094.9, MS51094.10, MS51094.11, MS51094.12, MS51094.13, MS51094.14, MS51094.15, MS51094.16, MS51094.17, MS51094.18, MS51094.19, MS51094.20, MS51094.21, MS51094.22, MS51094.23, MS51094.24, MS51094.25, MS51094.26, MS51094.27, MS51094.28, MS51094.29, MS51094.30, MS51094.31, MS51094.32, MS51094.33, MS51094.34, MS51094.35, MS51094.36, MS51094.37, MS51094.38, MS51094.39, MS51094.40, MS51094.41, MS51094.42, MS51094.43, MS51094.44, MS51094.45, MS51094.46, MS51094.47, MS51094.48, MS51094.49, MS51094.50, MS51094.51, MS51094.52, MS51094.53, MS51094.54, MS51094.55, MS51094.56, MS51094.57, MS51094.58, MS51094.59, MS51094.60, MS51094.61, MS51094.62, MS51094.63, MS51094.64, MS51094.65, MS51094.66, MS51094.67, MS51094.68, MS51094.69, MS51094.70, MS51094.71, MS51094.72, MS51094.73, MS51094.74, MS51094.75, MS51094.76, MS51094.77, MS51094.78, MS51094.79, MS51094.80, MS51094.81, MS51094.82, MS51094.83, MS51094.84, MS51094.85, MS51094.86, MS51094.87, MS51094.88, MS51094.89, MS51094.90, MS51094.91, MS51094.92, MS51094.93, MS51094.94, MS51094.95, MS51094.96, MS51094.97, MS51094.98, MS51094.99, MS51094.100 | |

This military standard is mandatory for use by all Departments and Agencies of the Department of Defense. Selection for all new engineering and design applications and for repetitive use shall be made from this document.

NOTES:

1. **MATERIAL:** Medium carbon steel, Grade 5, in accordance with procurement specification. Minimum ultimate tensile strength: 120,000 PSI.
2. **PROTECTIVE COATING:** Cadmium plated in accordance with procurement specification.
3. **THREADS:** The threads shall be in accordance with Screw-Thread Standards for Federal Services, Handbook H29.
4. **THREAD LENGTH:** Minimum thread length shall be twice the diameter plus 1/4 inch. The tolerance shall be plus 3/16 inch or 2-1/2 threads, whichever is greater. On screws that are too short for minimum thread length, the distance from the bearing surface of the head to the first complete thread shall not exceed the length of 2-1/2 threads.
5. **DIMENSIONS:** All dimensions are in inches, unless otherwise specified.
6. **HEAD MARKING:** Heads shall be marked in accordance with MIL-HDBK-131. Screws with self-locking elements shall also have six dots in a circular pattern on the head. Raised markings are preferred, stampings are acceptable.
7. **SELF-LOCKING ELEMENT:**
 - (a) The self-locking element shall be a patch type or longitudinal strip in accordance with MIL-F-18240.
 - (b) For "X" and "Y" dimensions and design and usage limitations, see MS15981.
 - (c) Maximum ring gage diameter that locking region of screw must pass thru freely or with finger pressure shall be the nominal size plus 0.010.
 - (d) Sizes 5/16, 7/16 and 7/8 shall not be available with self-locking element.
8. **PART NUMBER:** The MS part number consists of the MS number, plus the dash number. For screws with self-locking element add the letter "L" after the dash number. Example: MS51096-301 Plain screw. MS51096-301L Self-locking screw.
9. Referenced documents shall be of the issue in effect on date of invitations for bid.
10. For design feature purposes, this standard takes precedence over procurement documents referenced herein.
11. **INTERCHANGEABILITY:**
Screws covered by dash numbers 1 thru 223 of MS51094 and dash numbers 1 thru 223 of MS51096 are cancelled and superseded by dash numbers 301 thru 523, respectively, of MS51096. Cancelled screws may be used until existing stocks are depleted. Use only the superseding screws of MS51096 for new design.

REVIEWER: AT, AV, IS, MI, ME, NSA, OS, 11
 USER: AS, CL, MC, ME, YD

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APPROVED 16 JUL 1958 REVISED (A) 16 FEB 1965 (B) 16 JUL 1965 (C) 14 OCT 1968 (D) 1 MAY 1969 (E) FOR CHANGES SEE SHEETS 1 AND 2

☆ U. S. GOVERNMENT PRINTING OFFICE: 1972-714-167/8014

| | | |
|--------------------------------------|--|--------------------------------------|
| P.A. WC Other Cust SH 82 | TITLE SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT), HEAD DRILLED FOR LOCKING WIRE, STEEL, GRADE 5, CADMIUM PLATED, UNF-2A, PLAIN AND SELF-LOCKING (E) | MILITARY STANDARD MS 51096 |
| PROCUREMENT SPECIFICATION FF-S-85 | SUPERSEDES: MS51094, BCBX3, BCBX3.1, BCBX4, DCBX4.1, BUBX26 and BUBX27. | SHEET 2 OF 2 |

(D) 672-1 (Continued)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.