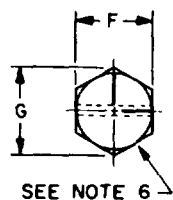
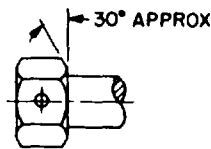
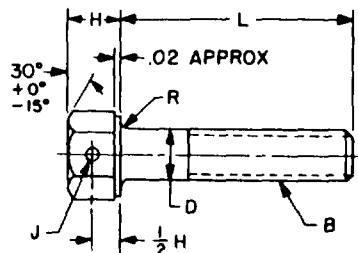


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SEE NOTE 6



OPTIONAL DESIGN

REVIEWER: AT, AV, IS, MI, MU, NSA, OS, 85
(SER:AS, CL, DC, ME, TD)

| NOMINAL SIZE | | 1/4 | 5/16 | 3/8 | 7/16 | 1/2 | 5/8 | 3/4 | 7/8 | 1 |
|--------------------------------|------------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------|------------------|------------------|
| B THREADS UNC-2A | | 20 | 18 | 16 | 14 | 13 | 11 | 10 | 9 | 8 |
| 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 | .4375 .4280 | .5000 .4890 | .5625 .5510 | .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 .498 | .577 .557 | .650 .628 | .722 .698 | .866 .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 | .088 .075 | .114 .098 | .130 .113 | .155 .136 | .172 .151 | .214 .189 | .256 .228 | .298 .266 | .332 .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 .040 | .065 .040 | .095 .060 |
| MIN TENSILE STRENGTH - LBS (B) | | 2,220 | 3,660 | 5,420 | 7,420 | 9,900 | 15,800 | 23,350 | 32,300 | 42,400 |

| L LENGTH | TOLERANCE | | DASH NO. | DASH NO. | DASH NO. | DASH NO. | DASH NO. | DASH NO. | DASH NO. | DASH NO. |
|----------|--------------------|-------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| | SIZE 3/4 AND UNDER | SIZE 7/8 AND OVER | | | | | | | | |
| .375 | | | 1 | 27 | | | | | | |
| .438 | | | 2 | 28 | | | | | | |
| .500 | | | 3 | 29 | 55 | | | | | |
| .562 | +0 | --- | 4 | 30 | 56 | | | | | |
| .625 | -.031 | | 5 | 31 | 57 | | | | | |
| .750 | | | 6 | 32 | 58 | 84 | 110 | 133 | | |
| .875 | | | 7 | 33 | 59 | 85 | 111 | 134 | | |
| 1.000 | | | 8 | 34 | 60 | 86 | 112 | 135 | 157 | |
| 1.250 | +0 | | 9 | 35 | 61 | 87 | 113 | 136 | 158 | 206 |
| 1.500 | | +0 | 10 | 36 | 62 | 88 | 114 | 137 | 159 | 207 |
| 1.750 | -.062 | +.125 | 11 | 37 | 63 | 89 | 115 | 138 | 160 | 208 |
| 2.000 | | | 12 | 38 | 64 | 90 | 116 | 139 | 161 | 209 |
| 2.250 | | | 13 | 39 | 65 | 91 | 117 | 140 | 162 | 210 |
| 2.500 | | | 14 | 40 | 66 | 92 | 118 | 141 | 163 | 211 |
| 2.750 | | | 15 | 41 | 67 | 93 | 119 | 142 | 164 | 212 |
| 3.000 | | | 16 | 42 | 68 | 94 | 120 | 143 | 165 | 213 |
| 3.250 | | | 17 | 43 | 69 | 95 | 121 | 144 | 166 | 214 |
| 3.500 | | | 18 | 44 | 70 | 96 | 122 | 145 | 167 | 215 |
| 3.750 | +0 | +0 | 19 | 45 | 71 | 97 | 123 | 146 | 168 | 216 |
| 4.000 | -.094 | -.188 | 20 | 46 | 72 | 98 | 124 | 147 | 169 | 217 |
| 4.250 | | | 21 | 47 | 73 | 99 | 125 | 148 | 170 | 218 |
| 4.500 | | | 22 | 48 | 74 | 100 | 126 | 149 | 171 | 219 |
| 4.750 | | | 23 | 49 | 75 | 101 | 127 | 150 | 172 | 220 |
| 5.000 | | | 24 | 50 | 76 | 102 | 128 | 151 | 173 | 221 |
| 5.500 | | | | | | 129 | 152 | 174 | 198 | 222 |
| 6.000 | | | | | | 130 | 153 | 175 | 199 | 223 |

NOTE: For notes see sheet 2.

(B) For changes see sheets 1 and 2.

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.

| | | |
|--------------------------------------|--|------------------------------|
| P.A. WC Other Cont SH 82 | TITLE SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT), HEAD DRILLED FOR LOCKING WIRE, STEEL, CORROSION-RESISTING, PASSIVATED, UNC-2A | MILITARY STANDARD MS51099 |
| PROCUREMENT SPECIFICATION FF-S-85 | SUPERSEDES: | SHEET 1 OF 2 |

DD FORM 672-1 (Continued)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE

APPROVED 16 JUL 1958 REVISED (A) 14 OCT 1968 (B) 1 MAY 1969

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NOTES:

- REVIEWER: AT, AV, IS, MI, MU, NSA, OS, 85
USER: AS, GL, MC, ME, YD
1. **MATERIAL:** Corrosion-resisting steel, 400 series, in accordance with procurement specification. Minimum ultimate tensile strength: 70,000 p.s.i.
 2. **PROTECTIVE COATING:** Passivated in accordance with procurement specification.
 3. **THREADS:** The threads shall be in accordance with Screw-Thread Standards for Federal Services, Handbook H28.
 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 lengths, 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. Raised markings are preferred, stampings are acceptable.
 7. **PART NUMBER:** The MS part number consists of the MS number, plus the dash number. Example: MS51099-1.
 8. Referenced documents shall be of the issue in effect on date of invitations for bid.
 9. For design feature purposes, this standard takes precedence over procurement documents referenced herein.

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.

APPROVED 16 JUL 1958 REVISED (A) 14 OCT 1968 (B) FOR CHANGES SEE SHEETS 1 AND 2.

| | | |
|--------------------------------------|--|-------------------------------------|
| P.A. WC Other Cust SH 82 | TITLE SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT), HEAD DRILLED FOR LOCKING WIRE, STEEL, CORROSION-RESISTING, PASSIVATED, UNC-2A | MILITARY STANDARD MS51099 |
| PROCUREMENT SPECIFICATION FF-S-85 | SUPERSEDES: | SHEET 2 OF |

DD FORM 672-1 (Continued)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.