FED. SUP CLASS 5305

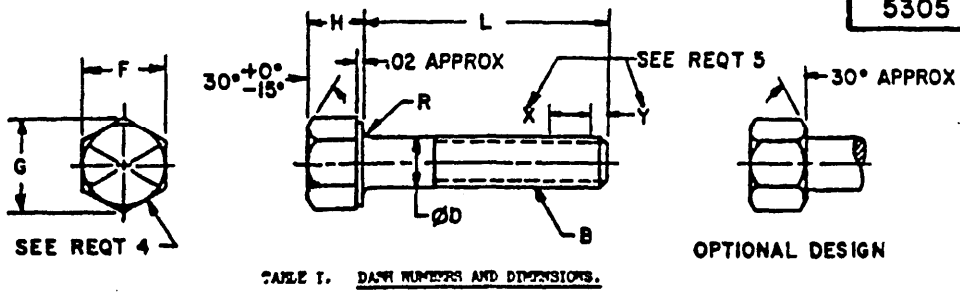


TABLE I. DASH NUMBERS AND DIMENSIONS.

| NOMINAL SIZE | | 1/4 .2500 | 5/16 .3125 | 3/8 .3750 | 7/16 .4375 | 1/2 .5000 | 9/16 .5625 | 5/8 .6250 | 3/4 .7500 | 7/8 .8750 |
|---|---|---|---|---|---|---|---|---|---|---|
| A THREADS PER INCH | | 20UNC-2A | 18UNC-2A | 16UNC-2A | 14UNC-2A | 13UNC-2A | 12UNC-2A | 11UNC-2A | 10UNC-2A | 9UNC-2A |
| ØD BODY DIAMETER | MAX | .2500 | .3125 | .3750 | .4375 | .5000 | .5625 | .6250 | .7500 | .8750 |
| | MIN | .2450 | .3065 | .3690 | .4305 | .4930 | .5545 | .6170 | .7410 | .8650 |
| F WIDTH ACROSS FLATS | MAX | .4375 | .5000 | .5625 | .6250 | .7500 | .8125 | .9375 | 1.1250 | 1.3125 |
| | MIN | .4260 | .4890 | .5510 | .6120 | .7360 | .7980 | .9220 | 1.1000 | 1.2850 |
| G WIDTH ACROSS CORNERS | MAX | .505 | .577 | .650 | .722 | .866 | .938 | 1.083 | 1.299 | 1.516 |
| | MIN | .488 | .557 | .628 | .698 | .840 | .910 | 1.051 | 1.254 | 1.465 |
| H HEAD HEIGHT | MAX | .163 | .211 | .243 | .291 | .323 | .371 | .403 | .483 | .563 |
| | MIN | .150 | .195 | .226 | .272 | .302 | .348 | .378 | .455 | .531 |
| R RADIUS | MAX | .025 | .025 | .025 | .025 | .025 | .045 | .045 | .045 | .065 |
| | MIN | .015 | .015 | .015 | .015 | .015 | .020 | .020 | .020 | .040 |
| 1/ MIN TENSILE STRENGTH - LBS | | 4,750 | 7,850 | 11,600 | 15,900 | 21,300 | 27,300 | 33,900 | 50,100 | 69,300 |

| L LENGTH | TOLERANCE: SIZE .750 AND UNDER | TOLERANCE: SIZE .875 | DASH NO | DASH NO | DASH NO | DASH NO 2/ | DASH NO | DASH NO 2/ | DASH NO | DASH NO | DASH NO 2/ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .375 | | | 1 | 27 | 53 | | | | | | |
| .438 | | | 2 | 28 | 54 | 79 | | | | | |
| .500 | | | 3 | 29 | 55 | 80 | 104 | | | | |
| .562 | +0 | +0 | 4 | 30 | 56 | 81 | 105 | 130 | | | |
| .625 | -.031 | -.062 | 5 | 31 | 57 | 82 | 106 | 131 | 155 | | |
| .750 | | | 6 | 32 | 58 | 83 | 107 | 132 | 156 | 179 | |
| .875 | | | 7 | 33 | 59 | 84 | 108 | 133 | 157 | 180 | 202 |
| 1.000 | | | 8 | 34 | 60 | 85 | 109 | 134 | 158 | 181 | 203 |
| 1.125 | | | 9 | 35 | 61 | 86 | 110 | 135 | 159 | 182 | 204 |
| 1.250 | | | 10 | 36 | 62 | 87 | 111 | 136 | 160 | 183 | 205 |
| 1.375 | +0 | +0 | 11 | 37 | 63 | 88 | 112 | 137 | 161 | 184 | 206 |
| 1.500 | -.062 | -.125 | 12 | 38 | 64 | 89 | 113 | 138 | 162 | 185 | 207 |
| 1.750 | | | 13 | 39 | 65 | 90 | 114 | 139 | 163 | 186 | 208 |
| 2.000 | | | 14 | 40 | 66 | 91 | 115 | 140 | 164 | 187 | 209 |
| 2.250 | | | 15 | 41 | 67 | 92 | 116 | 141 | 165 | 188 | 210 |
| 2.500 | | | 16 | 42 | 68 | 93 | 117 | 142 | 166 | 189 | 211 |
| 2.750 | | | 17 | 43 | 69 | 94 | 118 | 143 | 167 | 190 | 212 |
| 3.000 | | | 18 | 44 | 70 | 95 | 119 | 144 | 168 | 191 | 213 |
| 3.250 | | +0 | 19 | 45 | 71 | 96 | 120 | 145 | 169 | 192 | 214 |
| 3.500 | +0 | -.188 | 20 | 46 | 72 | 97 | 121 | 146 | 170 | 193 | 215 |
| 3.750 | -.094 | | 21 | 47 | 73 | 98 | 122 | 147 | 171 | 194 | 216 |
| 4.000 | | | 22 | 48 | 74 | 99 | 123 | 148 | 172 | 195 | 217 |
| 4.250 | | | 23 | 49 | 75 | 100 | 124 | 149 | 173 | 196 | 218 |
| 4.500 | | | 24 | 50 | 76 | 101 | 125 | 150 | 174 | 197 | 219 |
| 4.750 | | | 25 | 51 | 77 | 102 | 126 | 151 | 175 | 198 | 220 |
| 5.000 | | | 26 | 52 | 78 | 103 | 127 | 152 | 176 | 199 | 221 |
| 5.500 | | | | | | | 128 | 153 | 177 | 200 | 222 |
| 6.000 | | | | | | | 129 | 154 | 178 | 201 | 223 |

1/ SEE NOTE 2
2/ INACTIVE FOR NEW DESIGN AFTER 21 JUN 76

(F) DENOTES CHANGES

APPROVED 7 MAY 63 REVISED (A) 14 OCT 68 (B) 1 MAY 69 (C) 22 OCT 70 (D) 21 JUNE 76 (E) 20 DEC 83 (F) 30 OCT 84

USER ACTIVITIES:
ARMY - ME
NAVY - MC, OS, YD

REVIEWER ACTIVITIES:
ARMY - AT, AV, MI
AIR FORCE - 82
NSA - NS
DLA - IS

This military standard is approved 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 when applicable

| P.A. AR | INTERNATIONAL INTEREST | TITLE | MILITARY STANDARD |
|---|---|---|---|
| Other Cust 99 | | SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT), ALLOY STEEL, GRADE 8, CADMIUM PLATED, PLAIN AND SELF LOCKING, UNC-2A | MS90728 |
| PROCUREMENT SPECIFICATION ANSI B18.2.1-1981 | SUPERSEDES MS35301, MS35303, MS35305, BCVX7 IN PART, BUBX14, 14.1, 15, 15.1, 16 AND 16.1 | | PAGE 1 OF 3 |

DD FORM 672-1 (COORDINATED) PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE 5305-1588

FED. SUP CLASS
5305

TABLE I. DASH NUMBERS AND DIMENSIONS.

| NOMINAL SIZE | | 1<br>1.000 | 1-1/8<br>1.125 | 1-1/4<br>1.250 | 1-3/8<br>1.375 | 1-1/2<br>1.500 | 1-3/4<br>1.750 | 2<br>2.000 | 2-1/4<br>2.250 | 2-1/2<br>2.500 |
|---|---|---|---|---|---|---|---|---|---|---|
| B THREADS PER INCH | | 8UNC-2A | 7UNC-2A | 7UNC-2A | 6UNC-2A | 6UNC-2A | 5UNC-2A | 4-1/2UNC-2A | 4-1/2UNC-2A | 4UNC-2A |
| ØD BODY DIAMETER | MAX | 1.0000 | 1.1250 | 1.2500 | 1.3750 | 1.5000 | 1.7500 | 2.0000 | 2.2500 | 2.5000 |
| | MIN | .9900 | 1.1140 | 1.2390 | 1.3630 | 1.4880 | 1.7380 | 1.9880 | 2.2390 | 2.4880 |
| F WIDTH ACROSS FLATS | MAX | 1.5000 | 1.6875 | 1.8750 | 2.0625 | 2.2500 | 2.6250 | 3.0000 | 3.3750 | 3.7500 |
| | MIN | 1.4690 | 1.6310 | 1.8120 | 1.9940 | 2.1750 | 2.5590 | 2.9000 | 3.2620 | 3.6250 |
| G WIDTH ACROSS CORNERS | MAX | 1.732 | 1.949 | 2.165 | 2.382 | 2.598 | 3.031 | 3.464 | 3.897 | 4.330 |
| | MIN | 1.675 | 1.859 | 2.066 | 2.273 | 2.480 | 2.893 | 3.306 | 3.719 | 4.133 |
| H HEAD HEIGHT | MAX | .627 | .718 | .813 | .878 | .974 | 1.134 | 1.263 | 1.423 | 1.583 |
| | MIN | .591 | .658 | .749 | .810 | .902 | 1.054 | 1.175 | 1.327 | 1.479 |
| R RADIUS | MAX | .095 | .095 | .095 | .095 | .095 | .095 | .095 | .095 | .095 |
| | MIN | .060 | .060 | .060 | .060 | .060 | .060 | .060 | .060 | .060 |
| 1/ MIN TENSILE STRENGTH - LBS | | 90,900 | 114,400 | 145,470 | 173,200 | 210,800 | 227,900 | 299,750 | 399,700 | 479,850 |

| L LENGTH | TOLERANCE | DASH NO | DASH NO | DASH NO | DASH NO | DASH NO | DASH NO | DASH NO | DASH NO | DASH NO |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | +0<br>-.062 | 224 | | | | | | | | |
| 1.125 | | 225 | 245 | | | | | | | |
| 1.250 | | 226 | 246 | 265 | | | | | | |
| 1.375 | +0 | 227 | 247 | 266 | 284 | | | | | |
| 1.500 | -.125 | 228 | 248 | 267 | 285 | 302 | | | | |
| 1.750 | | 229 | 249 | 268 | 286 | 303 | 319 | | | |
| 2.000 | | 230 | 250 | 269 | 287 | 304 | 320 | | | |
| 2.250 | | 231 | 251 | 270 | 288 | 305 | 321 | 335 | | |
| 2.500 | | 232 | 252 | 271 | 289 | 306 | 322 | 336 | | |
| 2.750 | | 233 | 253 | 272 | 290 | 307 | 323 | 337 | 349 | 361 |
| 3.000 | | 234 | 254 | 273 | 291 | 308 | 324 | 338 | 350 | 362 |
| 3.250 | | 235 | 255 | 274 | 292 | 309 | 325 | 339 | 351 | 363 |
| 3.500 | +0 | 236 | 256 | 275 | 293 | 310 | 326 | 340 | 352 | 364 |
| 3.750 | -.188 | 237 | 257 | 276 | 294 | 311 | 327 | 341 | 353 | 365 |
| 4.000 | | 238 | 258 | 277 | 295 | 312 | 328 | 342 | 354 | 366 |
| 4.250 | | 239 | 259 | 278 | 296 | 313 | 329 | 343 | 355 | 367 |
| 4.500 | | 240 | 260 | 279 | 297 | 314 | 330 | 344 | 356 | 368 |
| 4.750 | | 241 | 261 | 280 | 298 | 315 | 331 | 345 | 357 | 369 |
| 5.000 | | 242 | 262 | 281 | 299 | 316 | 332 | 346 | 358 | 370 |
| 5.500 | | 243 | 263 | 282 | 300 | 317 | 333 | 347 | 359 | 371 |
| 6.000 | | 244 | 264 | 283 | 301 | 318 | 334 | 348 | 360 | 372 |

1/ SEE NOTE 2

REQUIREMENTS:

1. MATERIAL: ALLOY STEEL, SAE GRADE 8 IN ACCORDANCE WITH PROCUREMENT SPECIFICATION.
2. PROTECTIVE COATING: CADMIUM PLATED IN ACCORDANCE WITH QQ-P-416, TYPE II, CLASS 3.
3. THREADS: THREADS SHALL BE IN ACCORDANCE WITH PROCUREMENT SPECIFICATION.
4. IDENTIFICATION MARKING: HEADS SHALL BE MARKED IN ACCORDANCE WITH PROCUREMENT SPECIFICATION.
5. 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 OF THE NOMINAL SIZE PLUS 0.010.
6. PART NUMBER: THE PART NUMBER SHALL CONSIST OF THE BASIC MS SHEET NUMBER PLUS THE DASH NUMBER TAKEN FROM TABLE I OR II AS APPLICABLE. FOR SCREWS WITH SELF-LOCKING ELEMENT ADD THE LETTER "L" AFTER THE DASH NUMBER.

EXAMPLE: MS90728-236
(MS90728 — BASIC MS SHEET NUMBER; -236 — DASH NUMBER)

MS90728-236 INDICATES- SCREW, CAP, HEXAGON HEAD, ALLOY STEEL, SAE GRADE 8, CADMIUM PLATED, NOMINAL SIZE 1.000-8UNC-2A, LENGTH 3.500, NO SELF-LOCKING ELEMENT.

APPROVED 7 MAY 63 REVISED (F) FOR CHANGE SEE PAL

USER ACTIVITIES:
ARMY-ME, NAVY-MC,OS,YD

REVIEWER ACTIVITIES:
ARMY-AT,AV,MI
AIR FORCE-62
NSA-NS
DLA-IS

This military standard is approved 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 when applicable.

| P.A. AR; Other Coord 99 | INTERNATIONAL INTEREST | TITLE: SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT), ALLOY STEEL, GRADE 8, CADMIUM PLATED, PLAIN AND SELF LOCKING, UNC-2A | MILITARY STANDARD MS90728 |
|---|---|---|---|
| PROCUREMENT SPECIFICATION: ANSI B18.2.1-1981 | SUPERSEDES: MS35301, MS35303, MS35305, 8CVX7 IN PART, 8UBX14, 14.1, 15, 15.1, 16 AND 18.1 | | PAGE 2 OF 3 |

DD FORM 672-1 (COORDINATED) PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE 5305-1588

7. QUALITY ASSURANCE PROVISIONS: QUALITY ASSURANCE PROVISIONS SHALL BE IN ACCORDANCE WITH ANSI B18.18.1M-1982. THREAD INSPECTION METHOD ACCEPTABILITY SHALL BE IN ACCORDANCE WITH FED-STD-H28/20, SYSTEM 21 AND ANSI B18.18.1M-1982, INSPECTION LEVEL B.

8. PACKAGING: PACKAGING SHALL BE IN ACCORDANCE WITH ASTM D3951-82.

(F)9. THREAD LENGTH: MINIMUM THREAD LENGTH SHALL BE TWICE THE DIAMETER PLUS .250 INCH. THE TOLERANCE SHALL BE PLUS .187 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 FOR SIZES UP TO AND INCLUDING 1 INCH AND 3-1/2 THREADS FOR SIZES LARGER THAN 1 INCH.

NOTES:

1. ALL DIMENSIONS ARE IN INCHES.

2. BASED ON MINIMUM ULTIMATE TENSILE STRENGTH OF 150,000 PSI FOR DIAMETERS THRU 1-1/2 INCHES AND 120,000 PSI FOR DIAMETERS OVER 1-1/2 INCHES. TENSILE STRENGTHS ARE CALCULATED BY THE STRESS AREAS INDICATED IN FED-STD-H28, APPENDIX A5, 3. STRENGTH FACTORS.

3. CROSS REFERENCE OF PART NUMBERS: THE SCREWS COVERED BY DASH NUMBERS GIVEN IN MS35301, MS35303 AND MS35305, ARE CANCELLED AFTER THE DATES INDICATED ON THE CANCELLED DOCUMENTS. USE DASH NUMBERS USED IN THIS STANDARD. THE CANCELLED SCREWS CANNOT ALWAYS REPLACE THE NEW SCREWS AND SHOULD BE USED UNTIL EXISTING STOCKS ARE DEPLETED. USE ONLY THE NEW SCREWS FOR DESIGN AND REPLACEMENT. DASH NUMBERS REPRESENTING OLD AND NEW SCREWS ARE IDENTICAL, MAKING IT UNNECESSARY TO PREPARE AN INTERCHANGEABILITY TABLE.

4. REFERENCED DOCUMENTS SHALL BE OF THE ISSUE IN EFFECT ON DATE OF INVITATIONS FOR BIDS, OR REQUEST FOR PROPOSAL, EXCEPT THAT REFERENCED ADOPTED INDUSTRY DOCUMENTS SHALL GIVE THE DATE OF THE ISSUE ADOPTED.

5. FOR DESIGN FEATURE PURPOSES THIS STANDARD TAKES PRECEDENCE OVER PROCUREMENT DOCUMENTS REFERENCED HEREIN.

USER ACTIVITIES:
ARMY-ME
NAVY-MC,OS,YD

REVIEWER ACTIVITIES:
ARMY-AT,AV,MI
AIR FORCE-82
NSA-NS
DLA-IS

APPROVED 7 MAY 63 REVISED (F) FOR CHANGE SEE PAGE 3

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| P. A. AR Other Govt 99 | INTERNATIONAL INTEREST | TITLE SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT), ALLOY STEEL, GRADE 8, CADMIUM PLATED, PLAIN AND SELF LOCKING, UNC-2A | MILITARY STANDARD MS90728 |
|---|---|---|---|
| PROCUREMENT SPECIFICATION ANSI B18.2.1-1981 | SUPERSEDES: MS35301, MS35303, MS35305, BCVX7 IN PART, BUBX14, 14.1, 15, 15.1, 16 AND 16.1 | | PAGE 3 OF 3 |