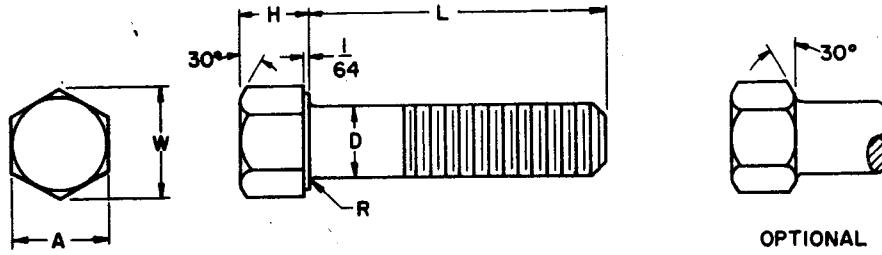


FED. SUP CLASS  
5305



NOTICE—When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility, nor any obligation whatsoever, and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

| NOMINAL SIZE         |   |             | 1/4  | 5/16   | 3/8  | 7/16   | 1/2  | 9/16   | 5/8  |
|----------------------|---|-------------|--|--|--|--|--|--|--|
| THREADS PER INCH     |   |             | 28UNF  | 24UNF  | 24UNF  | 20UNF  | 20UNF  | 18UNF  | 18UNF  |
| BODY DIAMETER        | D | Max<br>Min  | .2500<br>.2450   | .3125<br>.3065                               | .3750<br>.3690                               | .4375<br>.4305                               | .5000<br>.4930                                   | .5625<br>.5545   | .6250<br>.6170   |
| WIDTH ACROSS FLATS   | A | Max<br>Min  | .4375<br>.4280   | .5000<br>.4890                               | .5625<br>.5510                               | .6250<br>.6120                               | .7500<br>.7360                                   | .8125<br>.7990   | .9375<br>.9220   |
| WIDTH ACROSS CORNERS | W | Max<br>Min  | .5050<br>.4880   | .5770<br>.5570                               | .6500<br>.6280                               | .7220<br>.6980                               | .8660<br>.8400                                   | .9380<br>.9100   | 1.0330<br>1.0510   |
| HEAD HEIGHT          | H | Max<br>Min  | .1630<br>.1500   | .2110<br>.1950                               | .2430<br>.2260                               | .2910<br>.2720                               | .3230<br>.3020                                   | .3710<br>.3480   | .4030<br>.3780   |
| RADIUS               | R | Max<br>Min  | .023<br>.009   | .023<br>.009                                 | .023<br>.009                                 | .023<br>.009                                 | .023<br>.009                                     | .041<br>.021   | .041<br>.021   |
| LENGTH               | L | Tolerance   | Dash Number  | Dash Number                                  | Dash Number                                  | Dash Number                                  | Dash Number                                      | Dash Number  | Dash Number  |
|                      |   |             | 3/8<br>7/16<br>1/2<br>9/16<br>5/8<br>3/4                                   | 1<br>2<br>3<br>4<br>5<br>6                   | 27<br>28<br>29<br>30<br>31<br>32             | 53<br>54<br>55<br>56<br>57<br>58             | 79<br>80<br>81<br>82<br>83                       | 104<br>105<br>106<br>107   | 130<br>131<br>132  |
|                      |   | +0<br>-1/32 |  |  |  |  |  |  | 155<br>156   |
|                      |   |             | 7/8  | 7<br>8                                       | 33<br>34                                     | 59<br>60                                     | 84<br>85   | 108<br>109   | 133<br>134   |
|                      |   |             | 1-1/8<br>1-1/4<br>1-3/8<br>1-1/2   | 9<br>10<br>11<br>12                          | 35<br>36<br>37<br>38                         | 61<br>62<br>63<br>64                         | 86<br>87<br>88<br>89                             | 110<br>111<br>112<br>113   | 135<br>136<br>137<br>138   |
|                      |   | +0<br>-1/16 |  |  |  |  |  |  | 163<br>164<br>165<br>166<br>167<br>168                             |
|                      |   |             | 1-3/4<br>2<br>2-1/4<br>2-1/2<br>2-3/4<br>3                                 | 13<br>14<br>15<br>16<br>17<br>18             | 39<br>40<br>41<br>42<br>43<br>44             | 65<br>66<br>67<br>68<br>69<br>70             | 90<br>91<br>92<br>93<br>94<br>95                 | 114<br>115<br>116<br>117<br>118<br>119                             | 139<br>140<br>141<br>142<br>143<br>144                             |
|                      |   |             | 3-1/4<br>3-1/2<br>3-3/4<br>4<br>4-1/4<br>4-1/2<br>4-3/4<br>5<br>5-1/2<br>6 | 19<br>20<br>21<br>22<br>23<br>24<br>25<br>26 | 45<br>46<br>47<br>48<br>49<br>50<br>51<br>52 | 71<br>72<br>73<br>74<br>75<br>76<br>77<br>78 | 96<br>97<br>98<br>99<br>100<br>101<br>102<br>103 | 120<br>121<br>122<br>123<br>124<br>125<br>126<br>127<br>128<br>129 | 145<br>146<br>147<br>148<br>149<br>150<br>151<br>152<br>153<br>154 |
|                      |   | +0<br>-3/32 |  |  |  |  |  |  | 169<br>170<br>171<br>172<br>173<br>174<br>175<br>176<br>177<br>178 |

**Ⓐ CANCELLED**  
SEE SHEET 2

**MATERIAL:** Low Carbon Steel, Grade 2 of procurement specification. Minimum tensile strengths: 69,000 psi for diameters through 1/2"; 64,000 psi for diameters 9/16" through 3/4"; 55,000 psi for diameters over 3/4".

**FINISH:** Plain (untreated).

**THREADS:** The threads shall be in accordance with Screw-Thread Standards for Federal Services Handbook H-23.

**MINIMUM THREAD LENGTH:** Shall be twice the diameter plus 1/4" for lengths up to and including 6". The tolerance shall be plus 3/16" or 2-1/2 threads, whichever is greater. On products 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" and 3-1/2 threads for sizes larger than 1".

**NOTES:** (1) Referenced documents of issue in effect on date of invitation for bids shall apply.  
(2) In case of conflict with any referenced document, this standard will govern.  
(3) The MS part number consists of the MS sheet number, plus the dash number. Example: MS 35290-1.  
(4) All dimensions in inches.

Ⓐ For Changes see Sheets 1 and 2.

|                                      |              |   |                   |
|--------------------------------------|--------------|---|-------------------|
| P.A.                                 | WC           | TITLE   | MILITARY STANDARD |
| Other Cust                           | SHIPS<br>ASD | SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT),<br>LOW CARBON STEEL, PLAIN FINISH, UNF-2A | MS35290           |
| PROCUREMENT SPECIFICATION<br>FF-S-85 | SUPERSIDES:  | SHEET   | 1 OF 2            |

This military standard is approved by the Department of Defense and is mandatory on all activities. Selection for all new engineering and design specifications and for repetitive use shall be made from this document.

APPROVED 4 MAR 54 REVISED Ⓐ 30 APRIL 63

FED. SUP CLASS  
5305

NOTICE—When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have furnished, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

| NOMINAL SIZE         | 3/4   |                       | 7/8                  |                  | 1                |                  | 1-1/8            |                  | 1-1/4            |                | 1-3/8          |                | 1-1/2          |                |
|----------------------|-------|-----------------------|----------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|----------------|
| THREADS PER INCH     | 16UNF |                       | 14UNF                |                  | 12UNF            |                  | 12UNF            |                  | 12UNF            |                | 12UNF          |                | 12UNF          |                |
| BODY DIAMETER        | D     | {<br>Max<br>Min       | .7500<br>.7410       | .8750<br>.8660   | 1.0000<br>0.9900 | 1.1250<br>1.1140 | 1.2500<br>1.2390 | 1.3750<br>1.3630 | 1.5000<br>1.4880 |                |                |                |                |                |
| WIDTH ACROSS FLATS   | A     | {<br>Max<br>Min       | 1.1250<br>1.1000     | 1.3125<br>1.2850 | 1.5000<br>1.4690 | 1.6875<br>1.6310 | 1.8750<br>1.8120 | 2.0625<br>1.9940 | 2.2500<br>2.1750 |                |                |                |                |                |
| WIDTH ACROSS CORNERS | W     | {<br>Max<br>Min       | 1.2990<br>1.2540     | 1.5160<br>1.4650 | 1.7320<br>1.6750 | 1.9490<br>1.8590 | 2.1650<br>2.0660 | 2.3820<br>2.2730 | 2.5980<br>2.4800 |                |                |                |                |                |
| HEAD HEIGHT          | H     | {<br>Max<br>Min       | .4830<br>.4550       | .5630<br>.5310   | .6270<br>.5910   | .7180<br>.6580   | .8130<br>.7490   | .8780<br>.8100   | .9740<br>.9020   |                |                |                |                |                |
| RADIUS               | R     | {<br>Max<br>Min       | .041<br>.021         | .062<br>.041     | .093<br>.062     | .093<br>.062     | .093<br>.062     | .093<br>.062     | .093<br>.062     |                |                |                |                |                |
| LENGTH               | L     | TOLERANCE             |                      | Dash<br>Number   | Dash<br>Number   | Dash<br>Number   | Dash<br>Number   | Dash<br>Number   | Dash<br>Number   | Dash<br>Number | Dash<br>Number | Dash<br>Number | Dash<br>Number | Dash<br>Number |
|                      |       | Size 3/4<br>and under | Size 7/8<br>and over |                  |                  |                  |                  |                  |                  |                |                |                |                |                |
| 3/4                  |       | +0                    | +0                   | 179              |                  |                  |                  |                  |                  |                |                |                |                |                |
| 7/8                  |       | -1/32                 | -1/16                | 180              | 202              |                  |                  |                  |                  |                |                |                |                |                |
| 1-1/8                |       |                       |                      | 181              | 203              | 224              |                  |                  |                  |                |                |                |                |                |
| 1-1/4                |       |                       |                      | 182              | 204              | 225              | 245              |                  |                  |                |                |                |                |                |
| 1-3/8                |       | +0                    | +0                   | 183              | 205              | 226              | 246              | 265              |                  |                |                |                |                |                |
| 1-1/2                |       | -1/16                 | -1/8                 | 184              | 206              | 227              | 247              | 266              | 284              |                |                |                |                |                |
| 1-3/4                |       |                       |                      | 185              | 207              | 228              | 248              | 267              | 285              | 302            |                |                |                |                |
| 2                    |       |                       |                      | 186              | 208              | 229              | 249              | 268              | 286              | 303            |                |                |                |                |
| 2-1/4                |       |                       |                      | 187              | 209              | 230              | 250              | 269              | 287              | 304            |                |                |                |                |
| 2-1/2                |       |                       |                      | 188              | 210              | 231              | 251              | 270              | 288              | 305            |                |                |                |                |
| 2-3/4                |       |                       |                      | 189              | 211              | 232              | 252              | 271              | 289              | 306            |                |                |                |                |
| 3                    |       |                       |                      | 190              | 212              | 233              | 253              | 272              | 290              | 307            |                |                |                |                |
| 3-1/4                |       |                       |                      | 191              | 213              | 234              | 254              | 273              | 291              | 308            |                |                |                |                |
| 3-1/2                |       |                       |                      | 192              | 214              | 235              | 255              | 274              | 292              | 309            |                |                |                |                |
| 3-3/4                |       | +0                    | +0                   | 193              | 215              | 236              | 256              | 275              | 293              | 310            |                |                |                |                |
| 4                    |       | -3/32                 | -3/16                | 194              | 216              | 237              | 257              | 276              | 294              | 311            |                |                |                |                |
| 4-1/4                |       |                       |                      | 195              | 217              | 238              | 258              | 277              | 295              | 312            |                |                |                |                |
| 4-1/2                |       |                       |                      | 196              | 218              | 239              | 259              | 278              | 296              | 313            |                |                |                |                |
| 4-3/4                |       |                       |                      | 197              | 219              | 240              | 260              | 279              | 297              | 314            |                |                |                |                |
| 5                    |       |                       |                      | 198              | 220              | 241              | 261              | 280              | 298              | 315            |                |                |                |                |
| 5-1/2                |       |                       |                      | 199              | 221              | 242              | 262              | 281              | 299              | 316            |                |                |                |                |
| 6                    |       |                       |                      | 200              | 222              | 243              | 263              | 282              | 300              | 317            |                |                |                |                |
|                      |       |                       |                      | 201              | 223              | 244              | 264              | 283              | 301              | 318            |                |                |                |                |

NOTE: For illustration, material, finish and other pertinent data, see sheet 1.

Ⓐ CANCELLED AFTER 30 April 1963. USE MS90726. INTERCHANGEABILITY RELATIONSHIP - MS90726 can replace the cancelled screws of the same size. The cancelled MS35290 cannot always replace MS90726 and should be used until existing stock is depleted. Then use only the superseding MS screws of the same size for design and replacement.

Ⓐ CANCELLED  
SEE NOTE

This drawing standard is approved by the Department of Defense and is mandatory on all contractors. Substitutes for all new engineering and design applications and for replacement parts shall be made from this document.

|                         |          |   |                   |
|-------------------------|----------|---|-------------------|
| P.A.                    | MS       | TITLE   | MILITARY STANDARD |
| Other than              | ASST     | SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT),<br>LOW CARBON STEEL, PLAIN FINISH, UNF-2A | MS35290           |
| PRECEDENT SPECIFICATION | REVISION |   | SHEET 2 OF        |
| FP-S-85                 |          |   |                   |

DD FORM 672-1 (1963)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

APPROVED 4 MAR 54 REVISED Ⓐ FOR CHANGES SEE SHEETS 1 AND 2.