



Atlanta, Georgia

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Round Head Machine Screw



| ASME B 1.1            | Size and Threads Per Inch | Series Designation | Allowance | Major Diameter |       | Pitch Diameter |                 |           | Tensile Strength, lb. Min** | Stress Area Inches <sup>2</sup> | A             |               | H          |            | J                   |      | T       |      | M     | G    | N     | Phillips Bit Size |
|-----------------------|---------------------------|--------------------|-----------|----------------|-------|----------------|-----------------|-----------|-----------------------------|---------------------------------|---------------|---------------|------------|------------|---------------------|------|---------|------|-------|------|-------|-------------------|
|                       |                           |                    |           | Min            | Max   | Min            | Max             | Tolerance |                             |                                 | Head Diameter | Head Height   | Slot Width | Slot Depth | Dimension of Recess |      |         |      |       |      |       |                   |
|                       |                           |                    |           | Min            | Max   | Min            | Max             | Min       |                             |                                 | Max           | Min           | Max        | Min        | Max                 | Min  | Max     | Ref  |       |      |       |                   |
| 6-32                  | 0.138                     | UNC                | .0008     | .1312          | .1372 | .1141          | .1169           | .002820   | 550                         | 0.00909                         | .240          | .260          | .091       | .103       | .039                | .048 | .051    | .068 | .155  | .070 | .045  | 2                 |
| 6-40                  | 0.138                     | UNF                | .0008     | .1321          | .1372 | .1184          | .1210           | .002614   | 609                         | 0.01015                         | .240          | .260          | .091       | .103       | .039                | .048 | .051    | .068 | .155  | .070 | .045  | 2                 |
| 8-32                  | 0.164                     | UNC                | .0009     | .1571          | .1631 | .1399          | .1428           | .002916   | 850                         | 0.0140                          | .287          | .309          | .107       | .120       | .045                | .054 | .058    | .077 | .171  | .088 | .064  | 2                 |
| 8-36                  | 0.164                     | UNF                | .0009     | .1577          | .1632 | .1424          | .1452           | .002804   | 884                         | 0.01474                         | .287          | .309          | .107       | .120       | .045                | .054 | .058    | .077 | .171  | .088 | .064  | 2                 |
| 10-24                 | 0.190                     | UNC                | .0010     | .1818          | .1890 | .1586          | .1619           | .003319   | 1050                        | 0.0175                          | .334          | .359          | .123       | .137       | .050                | .060 | .065    | .087 | .188  | .106 | .082  | 2                 |
| 10-32                 | 0.190                     | UNF                | .0009     | .1831          | .1891 | .1658          | .1688           | .003004   | 1200                        | 0.0200                          | .334          | .359          | .123       | .137       | .050                | .060 | .065    | .087 | .188  | .106 | .082  | 2                 |
| 12-24                 | 0.216                     | UNC                | .0010     | .2078          | .2150 | .1845          | .1879           | .003400   | 1450                        | 0.0242                          | .382          | .408          | .139       | .153       | .056                | .067 | .073    | .096 | n/a   | n/a  | n/a   | 3                 |
| 12-28                 | 0.216                     | UNF                | .0010     | .2085          | .2150 | .1886          | .1918           | .003224   | 1548                        | 0.0258                          | .382          | .408          | .139       | .153       | .056                | .067 | .073    | .096 | n/a   | n/a  | n/a   | 3                 |
| 1/4-20                | 0.250                     | UNC                | .0011     | .2408          | .2489 | .2127          | .2164           | .003731   | 1900                        | 0.0318                          | .443          | .472          | .160       | .175       | .064                | .075 | .082    | .109 | .261  | .134 | .104  | 3                 |
| 1/4-28                | 0.250                     | UNF                | .0010     | .2425          | .2490 | .2225          | .2258           | .003322   | 2200                        | 0.0364                          | .443          | .472          | .160       | .175       | .064                | .075 | .082    | .109 | .261  | .134 | .104  | 3                 |
| 5/16-18               | 0.3125                    | UNC                | .0012     | .3026          | .3113 | .2712          | .2752           | .004041   | 3150                        | 0.0524                          | .557          | .590          | .198       | .216       | .072                | .084 | .099    | .132 | .301  | .174 | .144  | 3                 |
| 5/16-24               | 0.3125                    | UNF                | .0011     | .3042          | .3114 | .2806          | .2843           | .003660   | 3480                        | 0.0580                          | .557          | .590          | .198       | .216       | .072                | .084 | .099    | .132 | .301  | .174 | .144  | 3                 |
| 3/8-16                | 0.375                     | UNC                | .0013     | .3643          | .3737 | .3287          | .3331           | .004363   | 4650                        | 0.0775                          | .670          | .708          | .237       | .256       | .081                | .094 | .117    | .155 | .380  | .215 | .182  | 4                 |
| 3/8-24                | 0.375                     | UNF                | .0011     | .3667          | .3739 | .3430          | .3468           | .003804   | 5268                        | 0.0878                          | .670          | .708          | .237       | .256       | .081                | .094 | .117    | .155 | .380  | .215 | .182  | 4                 |
| Tolerance on Length L | Screw Size                | Screw Length       |           |                |       |                |                 |           |                             |                                 |               |               |            |            |                     |      |         |      |       |      |       |                   |
|                       |                           | Up To 1/2"         |           |                |       |                | Over 1/2" to 1" |           |                             |                                 |               | Over 1" to 2" |            |            |                     |      | Over 2" |      |       |      |       |                   |
|                       |                           | 6 - 12             |           |                |       |                | -0.02           |           |                             |                                 |               | -0.03         |            |            |                     |      | -0.06   |      |       |      | -0.09 |                   |
| 1/4 - 3/8             |                           |                    |           |                | -0.03 |                |                 |           |                             | -0.03                           |               |               |            |            | -0.06               |      |         |      | -0.09 |      |       |                   |

\*\*Tensile strength is based off of 60,000 psi. and only apply to carbon steel screws. Hex and Hex Washer Head machine screws of adequate length may be wedge tensile tested. Other head styles can be axial tensile tested.

| ANSI B18.6.3     | Steel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SAE Stainless 18-8                | Stainless 316                     | Stainless 410                |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------|------------------------------|
| Material         | AISI 1006 - 1022 or equivalent Steel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Stainless SAE 18-8                | Stainless SAE 316                 | Stainless SAE 410 Passivated |
| Hardness         | Rockwell B70 - B100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Rockwell B85 - B95 (approximate)* | Rockwell B85 - B95 (approximate)* | Rockwell C34 (approximate)*  |
| Tensile Strength | Steel machine screws which have a nominal diameter smaller than #4 are not subject to tensile testing. No. 4 and No. 5 machine screws which are shorter than 1/2" are not subject to tensile testing. Steel machine screws of diameters No. 6 to 1/2" inclusive, which are shorter than either 1/2" or 3D (where D is the nominal screw size in inches) are not subject to tensile testing. Such steel machine screws of a size to be tested shall meet the tensile load requirements listed above. **Tensile strength values for stainless screws are offered as approximations only. There is no single standard for the performance requirements of stainless machine screws. |                                   |                                   |                              |

\* Hardness and tensile strength standards are offered as guides only for stainless machine screws. There is currently no national standard for these performance requirements for stainless machine screws.

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|-----------------------|---------------------------|--------------------|-----------|----------------|-------|----------------|-----------------|-----------|-----------------------------|---------------------------------|---------------|---------------|------------|------------|---------------------|------|---------|------|-------|------|-------|-------------------|
|                       |                           |                    |           | Min            | Max   | Min            | Max             | Tolerance |                             |                                 | Head Diameter | Head Height   | Slot Width | Slot Depth | Dimension of Recess |      |         |      |       |      |       |                   |
|                       |                           |                    |           | Min            | Max   | Min            | Max             | Min       |                             |                                 | Max           | Min           | Max        | Min        | Max                 | Min  | Max     | Ref  |       |      |       |                   |
| 6-32                  | 0.138                     | UNC                | .0008     | .1312          | .1372 | .1141          | .1169           | .002820   | 550                         | 0.00909                         | .240          | .260          | .091       | .103       | .039                | .048 | .051    | .068 | .155  | .070 | .045  | 2                 |
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