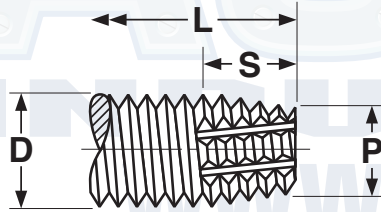


# THREAD CUTTING Type F



| THREADS AND POINTS FOR TYPE-F THREAD CUTTING SCREWS |                     |                             |       |                   |                    |                                     |             |      |  |                       |                                       |              |   | ASME<br>B18.6.3-2013 |
|---|---------------------|-----------------------------|-------|-------------------|--------------------|-------------------------------------|-------------|------|--|-----------------------|---------------------------------------|--------------|---|----------------------|
| Nominal Size<br>or Basic<br>Screw<br>Diameter       | Threads<br>Per Inch | D                           |       | P                 | S                  |                                     |             |      | L  |                       |                                       |              | Minimum<br>Torsional<br>Strength,<br>lb.-in.<br>(STEEL<br>SCREWS<br>ONLY) |                      |
|   |                     | Major Diameter              |       | Point<br>Diameter | Point Taper Length |                                     |             |      | Determinant<br>Length for<br>Point Taper |                       | Minimum<br>Practical Screw<br>Lengths |              |   |                      |
|   |                     | Max                         | Min   | Ref               | Short Screws       |                                     | Long Screws |      | 90°<br>Heads                             | Csk<br>Heads          | 90°<br>Heads                          | Csk<br>Heads |   |                      |
|   |                     |                             |       |                   | Max                | Min                                 | Max         | Min  |  |                       |                                       |              |   |                      |
| 2   | .0860               | 56                          | .0860 | .0813             | .068               | .062                                | .045        | .080 | .062                                     | 5/32                  | 3/16                                  | 5/32         | 3/16  | 5                    |
| 4   | .1120               | 40                          | .1120 | .1061             | .087               | .088                                | .062        | .112 | .088                                     | 7/32                  | 1/4                                   | 3/16         | 1/4   | 13                   |
| 5   | .1250               | 40                          | .1250 | .1191             | .100               | .088                                | .062        | .112 | .088                                     | 7/32                  | 9/32                                  | 3/16         | 1/4   | 18                   |
| 6   | .1380               | 32                          | .1380 | .1312             | .107               | .109                                | .078        | .141 | .109                                     | 1/4                   | 5/16                                  | 1/4          | 5/16  | 23                   |
| 8   | .1640               | 32                          | .1640 | .1571             | .132               | .109                                | .078        | .141 | .109                                     | 1/4                   | 11/32                                 | 1/4          | 5/16  | 42                   |
| 10  | .1900               | 24                          | .1900 | .1818             | .148               | .146                                | .104        | .188 | .146                                     | 11/32                 | 7/16                                  | 5/16         | 13/32   | 56                   |
| 10  | .1900               | 32                          | .1900 | .1831             | .158               | .109                                | .078        | .141 | .109                                     | 1/4                   | 11/32                                 | 1/4          | 5/16  | 74                   |
| 12  | .2160               | 24                          | .2160 | .2078             | .174               | .146                                | .104        | .188 | .146                                     | 11/32                 | 7/16                                  | 5/16         | 13/32   | 93                   |
| 1/4   | .2500               | 20                          | .2500 | .2408             | .200               | .175                                | .125        | .225 | .175                                     | 13/32                 | 17/32                                 | 3/8          | 1/2   | 140                  |
| 5/16  | .3125               | 18                          | .3125 | .3026             | .257               | .194                                | .139        | .250 | .194                                     | 15/32                 | 19/32                                 | 7/16         | 9/16  | 306                  |
| 3/8   | .3750               | 16                          | .3750 | .3643             | .312               | .219                                | .156        | .281 | .219                                     | 1/2                   | 11/16                                 | 15/32        | 5/8   | 560                  |
| 1/2   | .5000               | 13                          | .5000 | .4876             | .423               | .269                                | .192        | .346 | .269                                     | 5/8                   | 25/32                                 | 19/32        | 3/4   | 1075                 |
| Tolerance on Length                                 |                     | Up to 3/4 in., incl.: -0.03 |       |                   |                    | Over 3/4 to 1-1/2 in., incl.: -0.05 |             |      |  | Over 1-1/2 in.: -0.06 |                                       |              |   |                      |

|                                     |  |
|-------------------------------------|--|
| <b>Description</b>                  | A thread cutting screw with machine screw thread pitch, blunt point, tapered entering threads and multiple cutting edges.  |
| <b>Applications/<br/>Advantages</b> | Steel thread-cutters are used in heavy gauge sheet metal, aluminum, zinc and lead die castings, cast iron, brass and plastic. Stainless screws offer additional resistance to corrosion, 18-8 moreso than 410. When using any thread-cutting screw, the material in which the threads are cut should have a lower hardness by at least 10 to 20 Rockwell hardness points.  |
| <b>Material</b>                     | <b>Steel:</b> AISI 1016 - 1024 or equivalent steel. <b>Stainless:</b> 410 martensitic stainless steel or 18-8 stainless steel.   |
| <b>Heat Treatment</b>               | <b>Steel:</b> Screws shall be quenched in liquid and then tempered by reheating to 650°F minimum. <b>410 SS:</b> An ideal method of hardening 410 stainless screws is a bright hardening process, which typically involves a vacuum furnace. Another key factor affecting hardness is the chemistry of the fastener-most elements have maximum values but not minimums. This fact can contribute to hardness variance.<br><br>18-8 is only hardenable by cold-working. |
| <b>Surface Hardness</b>             | <b>Steel:</b> Rockwell C45 minimum   |
| <b>Case Depth (steel)</b>           | No. 4 thru 6 diameter: .002 - .007<br>No. 8 thru 12 diameter: .004 - .009<br>1/4" diameter & larger: .005 - .011   |
| <b>Hardness</b>                     | <b>Steel (after tempering):</b> Core: Rockwell C28 - 38<br><b>410:</b> Rockwell C38 - 46 (approx.); <b>18-8 Stainless:</b> Rockwell B90 - C20 (approx.)  |
| <b>Plating</b>                      | See Appendix-A for information on plating of steel thread cutting screws.  |