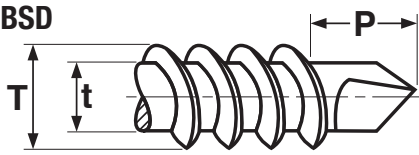


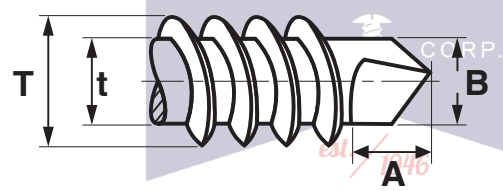
# SELF- TAPPING SCREWS

## SELF-DRILLING Type-BSD Type-CSD

Type-BSD



5/16 & 3/8 Diameter  
#3 Point



| SELF-DRILLING SCREWS, TYPE BSD             |                     |                |      |                |      |                         |        |   |                    |                    |                 |   |     | *SAE<br>J78-1998 |
|--|---------------------|----------------|------|----------------|------|-------------------------|--------|---|--------------------|--------------------|-----------------|---|-----|------------------|
| Nominal Size<br>or Basic Screw<br>Diameter | Threads<br>Per Inch | T              |      | t              |      | P                       |        | Minimum Practical Nominal Screw Lengths,<br>Formed Points |                    |                    |                 | Minimum Tor-<br>sional Strength,<br>lb.- in. (STEEL<br>SCREWS ONLY) |     |                  |
|  |                     | Major Diameter |      | Minor Diameter |      | Protrusion<br>Allowance |        | 90° Head,<br>#2 Pt  | Csk Head,<br>#2 Pt | 90° Head,<br>#3 Pt | Csk Head, #3 Pt |   |     |                  |
|  |                     | Max            | Min  | Max            | Min  | #2 Pt.                  | #3 Pt. |   |                    |                    |                 |   |     |                  |
| 4  | .1120               | 24             | .114 | .110           | .086 | .082                    | .163   | -   | 5/16               | 3/8                | -               | -   | 14  |                  |
| 6  | .1380               | 20             | .139 | .135           | .104 | .099                    | .190   | .220  | 5/16               | 3/8                | 3/8             | 7/16  | 24  |                  |
| 7*   | .1510               | 19             | .153 | .146           | .113 | .109                    | .137   | .157  | 5/16               | 3/8                | 3/8             | 7/16  | -   |                  |
| 8  | .1640               | 18             | .166 | .161           | .122 | .116                    | .211   | .251  | 3/8                | 7/16               | 7/16            | 1/2   | 42  |                  |
| 10   | .1900               | 16             | .189 | .183           | .141 | .135                    | .235   | .300  | 7/16               | 1/2                | 1/2             | 9/16  | 61  |                  |
| 12   | .2160               | 14             | .215 | .209           | .164 | .157                    | .283   | .353  | 1/2                | 5/8                | 1/2             | 5/8   | 92  |                  |
| 1/4  | .2500               | 14             | .246 | .240           | .192 | .185                    | .318   | .393  | 1/2                | 5/8                | 1/2             | 5/8   | 150 |                  |

\*SAE J78 does not include Specifications for #7 diameter drill screws.

| COARSE THREAD SELF DRILLING SCREWS - 5/16 & 3/8 DIAMETERS, #3 POINT |                     |                |      |                |      |                    |      |                      |      |      |  |
|---|---------------------|----------------|------|----------------|------|--------------------|------|----------------------|------|------|--|
| Nominal Size or Basic<br>Screw Diameter                             | Threads Per<br>Inch | T              |      | t              |      | A                  |      | B                    |      |      |  |
|   |                     | Major Diameter |      | Minor Diameter |      | Drill Point Length |      | Drill Point Diameter |      |      |  |
|   |                     | Max            | Min  | Max            | Min  | Max                | Min  | Max                  | Min  |      |  |
| 5/16  | .3125               | 12             | .315 | .307           | .272 | .263               | .421 | .361                 | .270 | .265 |  |
| 3/8   | .3750               | 12             | .380 | .370           | .308 | .298               | .354 | .314                 | .338 | .330 |  |

|                                     | Steel  | Stainless  |
|-------------------------------------|--|--|
| <b>Description</b>                  | <p><b>Type BSD:</b> A tapping screw with spaced threads and a drill point which drills its own hole.</p> <p><b>Type CSD:</b> A wafer head thread forming screw with machine screw thread pitch and a drill point which drills its own hole.</p> <p>Both types allow the screw to form mating threads and produce a complete fastening system in a single operation.</p>  |  |
| <b>Applications/<br/>Advantages</b> | <p><b>Type BSD:</b> May be used to attach plywood, soft woods or composition board to metal, or attach metal to metal.</p> <p><b>Type CSD:</b> The finer thread pitch reduces friction and driving torques. Type-CSD screws are normally used with thicker materials. The wafer head design allows the screw to set flush in wood and softer materials and provides a clean, finished appearance.</p> <p>All self-drilling screws offer economical benefits: reduces labor and tooling costs; reduces or eliminates drill bits and taps.</p> | <p><b>Type BSD:</b> The 18-8 stainless drill screw offers superior corrosion resistance while the 410 stainless screw will drill through harder material than the 18-8. The hardness of the material to be drilled should be a minimum of 10-20 Rockwell hardness points less than the screw's hardness.</p> <p>Minimum torques are the same for stainless and steel self-drill screws. Drill time is 2.5 seconds for a 1mm thick plate.</p> |
| <b>Material</b>                     | AISI 1016 - 1024 or equivalent steel   | 410 or 18-8 stainless steel  |
| <b>Heat Treatment</b>               | Screws shall be quenched in liquid and then tempered by reheating to 625°F minimum.  | 410 stainless screws shall be hardened and tempered by heating to 1800°-1900°F sufficient for austenitization, held for at least 1/2 hour and rapid air or oil-quenched then reheating to 500°-600°F for at least 1 hour and air cooled to provide the specified hardness.   |
| <b>Case Hardness</b>                | Rockwell C52 -58   | 410 SS: Rockwell C55 minimum   |
| <b>Case Depth</b>                   | <p>No. 4 and 6 diameter: .002 - .007</p> <p>No. 8 thru 12 diameter: .004 - .009</p> <p>1/4" diameter and larger: .005 - .011</p>   |  |
| <b>Core Hardness</b>                | Rockwell C32 - 40 (after tempering)  | <p>410 SS: Rockwell C38 - 42 (after tempering)</p> <p>18-8 SS: Rockwell B90 - C25 (approx.)</p>  |
| <b>Plating</b>                      | See Appendix-A for plating information.  | Stainless drill screws are usually supplied plain.   |

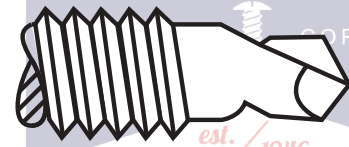
**Type-BSD  
Type-CSD** **SELF-DRILLING**



**TYPE BSD SELF-DRILLING SCREW SELECTION CHART**

| Nominal Screw Size | Point Number | Recommended Panel Thickness, in. |      |
|--------------------|--------------|----------------------------------|------|
|                    |              | Min.                             | Max. |
| 4                  | 2            | .035                             | .080 |
| 6                  | 2            | .035                             | .090 |
| 8                  | 2            | .035                             | .100 |
| 10                 | 2            | .035                             | .110 |
| 10                 | 3            | .110                             | .175 |
| 12                 | 3            | .110                             | .210 |
| 1/4                | 3            | .110                             | .220 |

This table is only a guide and does not constitute a warranty of any type.

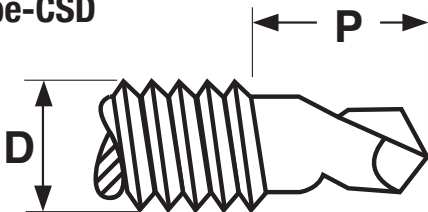


**TYPE CSD SELF DRILLING SCREW SELECTION CHART**

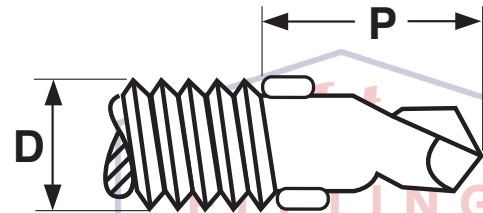
| Screw Size      | Maximum Drilling Capacity*    |
|-----------------|-------------------------------|
| 10-24 x 3/4"    | 1/4" Plywood to .175 Metal    |
| 10-24 x 1"      | 3/8" Plywood to .175 Metal    |
| 10-24 x 1-1/4"  | 1/2" Plywood to .175 Metal    |
| 10-24 x 1-1/2"  | 1/2" Plywood to .175 Metal    |
| 10-24 x 1-7/16" | 5/8 & 3/4" Wood to .175 Metal |

\*Drilling capacity may vary with type of material & hardness.

Type-CSD



Reamer with Wings (Type-CSD)



**STEEL SELF-DRILLING SCREWS, TYPE CSD** SAE J78

| Nominal Size or Basic Screw Diameter | Threads Per Inch | D              |       | P                    |       | Minimum Practical Nominal Screw Lengths, Countersunk Heads, Formed Points |                 |                 |                 | Minimum Torsional Strength, lb.- in. (STEEL SCREWS ONLY) |     |
|--------------------------------------|------------------|----------------|-------|----------------------|-------|---|-----------------|-----------------|-----------------|--|-----|
|                                      |                  | Major Diameter |       | Protrusion Allowance |       |   |                 |                 |                 |  |     |
|                                      |                  | Max            | Min   | #2 Pt                | #3 Pt | 90° Head, #2 Pt   | 90° Head, #3 Pt | Csk Head, #2 Pt | Csk Head, #3 Pt |  |     |
| 4                                    | .1120            | 40             | .1120 | .1072                | .130  | -   | 5/16            | -               | 3/8             | -  | 14  |
| 6                                    | .1380            | 32             | .1380 | .1326                | .152  | .172  | 5/16            | 3/8             | 3/8             | 7/16   | 24  |
| 8                                    | .1640            | 32             | .1640 | .1586                | .162  | .202  | 7/16            | 1/2             | 7/16            | 1/2  | 48  |
| 10                                   | .1900            | 24             | .1900 | .1834                | .193  | .258  | 1/2             | 9/16            | 1/2             | 9/16   | 65  |
| 12                                   | .2160            | 24             | .2160 | .2094                | .223  | .293  | 5/8             | 5/8             | 5/8             | 5/8  | 100 |
| 1/4                                  | .2500            | 20             | .2500 | .2428                | .275  | .350  | 5/8             | 5/8             | 5/8             | 5/8  | 156 |

|  |  |
|--|--|
| <b>Description</b>                               | <i>Reamer with Wings:</i> A Type CSD self-drilling screw with reaming wings located at opposite sides of the shank, below the threads and above the drill point.   |
| <b>Applications/ Advantages</b>                  | May be used for drilling through wood over 1/2" thick and the metal surface behind it. The wings drill out a clearance hole in wood or other soft materials, then snap off when in contact with the metal surface to be drilled. |
| <b>Mechanical &amp; Performance Requirements</b> | Same as other Type CSD self-drilling screws (see previous page).   |