SELF- TAPPING SCREWS

SELF-DRILLING

Type-BSD
Type-CSD

Nominal Size or Basic Screw Diameter | Threads Per Inch | \( T \) | \( t \) | \( P \) | Minimum Practical Nominal Screw Lengths, Formed Points | Minimum Tor-sional Strength, lb.- in. (STEEL SCREWS ONLY)
--- | --- | --- | --- | --- | --- | ---
2" | .0860 | .088 | .084 | .064 | .060 | #2 Pt. | #3 Pt. | 90° Head, #2 Pt | Csk Head, #2 Pt | 90° Head, #3 Pt | Csk Head, #3 Pt
2" | 32 | .088 | .084 | .064 | .060 | 1/4 | 5/16 | - | - | - | -
4 | .1120 | .114 | .110 | .086 | .082 | .163 | - | 5/16 | 3/8 | - | - | 14
6 | .1380 | .139 | .135 | .104 | .099 | .190 | .220 | 5/16 | 3/8 | 3/8 | 7/16 | 24
7" | .1510 | .153 | .146 | .113 | .109 | .137 | .157 | 5/16 | 3/8 | 3/8 | 7/16 | -
8 | .1640 | .166 | .161 | .122 | .116 | .211 | .251 | 3/8 | 7/16 | 7/16 | 1/2 | 42
10 | .1900 | .189 | .183 | .141 | .135 | .235 | .300 | 7/16 | 1/2 | 1/2 | 9/16 | 61
1/4 | .2500 | .246 | .240 | .192 | .185 | .318 | .393 | 1/2 | 5/8 | 1/2 | 5/8 | 150

*SAE J78 does not include Specifications for #2 or #7 diameter drill screws.

Spaced Thread Self Drilling Screws - 5/16 & 3/8 Diameters, #3 Point

Nominal Size or Basic Screw Diameter | Threads Per Inch | \( T \) | \( t \) | \( A \) | \( B \)
--- | --- | --- | --- | --- | ---
5/16 | .3125 | 12 | .315 | .307 | .272 | .263 | .421 | .361 | .270 | .265

Steel

Type BSD: A tapping screw with spaced threads and a drill point which drills its own hole.

Type CSD: A thread forming screw with machine screw thread pitch and a drill point which drills its own hole.

Both types allow the screw to form mating threads and produce a complete fastening system in a single operation.

Applications/Advantages

Type BSD: May be used to attach plywood, soft woods or composition board to metal, or attach metal to metal.

Type CSD: The finer thread pitch reduces friction and driving torques. Self-drilling screws offer economical benefits: reduces labor and tooling costs; reduces or eliminates drill bits and taps.

Material

AISI 1016 - 1024 or equivalent steel

Heat Treatment

Screws shall be quenched in liquid and then tempered by reheating to 625°F minimum.

Case Hardness

Rockwell C52 - 58

Case Depth

No. 2 thru 6 diameter: .002 -.007
No. 8 thru 12 diameter: .004 -.009
1/4" diameter and larger: .005 -.011

Hardness

Core: Rockwell C32 - 40 (after tempering)

410 SS: Rockwell C38 - 46 (approx.)

18-8 & 316 SS: Rockwell B100 (approx.)

Plating

See Appendix-A for plating information.

Stainless drill screws are usually supplied plain.
### SELF-DRILLING SCREWS

#### Type-BSD

**Selection Chart**

<table>
<thead>
<tr>
<th>Nominal Screw Size</th>
<th>Point Number</th>
<th>Recommended Panel Thickness, in.</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>2</td>
<td>-</td>
<td>.035</td>
<td>.080</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>-</td>
<td>.035</td>
<td>.090</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>-</td>
<td>.035</td>
<td>.100</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>-</td>
<td>.035</td>
<td>.110</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
<td>-</td>
<td>.110</td>
<td>.175</td>
</tr>
<tr>
<td>12</td>
<td>3</td>
<td>-</td>
<td>.110</td>
<td>.210</td>
</tr>
<tr>
<td>1/4</td>
<td>3</td>
<td>-</td>
<td>.110</td>
<td>.220</td>
</tr>
</tbody>
</table>

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

#### Type-CSD

**Selection Chart**

<table>
<thead>
<tr>
<th>Screw Size</th>
<th>Maximum Drilling Capacity*</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-24 x 3/4&quot;</td>
<td>1/4&quot; Plywood to .175 Metal</td>
</tr>
<tr>
<td>10-24 x 1&quot;</td>
<td>3/8&quot; Plywood to .175 Metal</td>
</tr>
<tr>
<td>10-24 x 1-1/4&quot;</td>
<td>1/2&quot; Plywood to .175 Metal</td>
</tr>
<tr>
<td>10-24 x 1-1/2&quot;</td>
<td>1/2&quot; Plywood to .175 Metal</td>
</tr>
<tr>
<td>10-24 x 1-7/16&quot;</td>
<td>5/8 &amp; 3/4&quot; Wood to .175 Metal</td>
</tr>
</tbody>
</table>

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

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### Steel Self-Drilling Screws, Type CSD (Unified Thread)

<table>
<thead>
<tr>
<th>Nominal Size or Basic Screw Diameter</th>
<th>Threads Per Inch</th>
<th>D (Major Diameter)</th>
<th>P (Protrusion Allowance)</th>
<th>Minimum Practical Nominal Screw Lengths, Countersunk Heads, Formed Points</th>
<th>Minimum Torsional Strength, lb.-in. (Steel Screws Only)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Max</td>
<td>Min</td>
<td>#2 Pt</td>
<td>#3 Pt</td>
</tr>
<tr>
<td>4</td>
<td>.1120</td>
<td>.1120</td>
<td>.1072</td>
<td>.130</td>
<td>5/16</td>
</tr>
<tr>
<td>6</td>
<td>.1380</td>
<td>.1380</td>
<td>.1326</td>
<td>.152</td>
<td>5/16</td>
</tr>
<tr>
<td>8</td>
<td>.1640</td>
<td>.1640</td>
<td>.1586</td>
<td>.162</td>
<td>7/16</td>
</tr>
<tr>
<td>10</td>
<td>.1900</td>
<td>.1900</td>
<td>.1834</td>
<td>.193</td>
<td>1/2</td>
</tr>
<tr>
<td>12</td>
<td>.2160</td>
<td>.2160</td>
<td>.2094</td>
<td>.223</td>
<td>5/8</td>
</tr>
<tr>
<td>1/4</td>
<td>.2500</td>
<td>.2500</td>
<td>.2428</td>
<td>.275</td>
<td>5/8</td>
</tr>
</tbody>
</table>

**Description**

*Reamer with Wings*: A Type CSD self-drilling screw with reaming wings located at opposite sides of the shank, below the threads and above the drill point.

**Applications/Advantages**

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.

**Mechanical & Performance Requirements**

Same as other Type CSD self-drilling screws (see previous page).