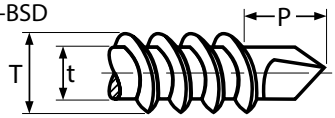
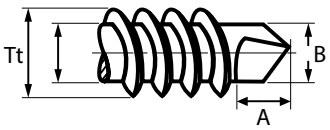
# SELF-DRILLING
## TYPE-BSD & TYPE-CSD

ONEMONROE

Type-BSD




5/16 & 3/8 Diameter
#3 Point




## SELF-DRILLING SCREWS, TYPE BSD (SPACED THREAD)

*SAE J78- 2013

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Major Diameter | | Minor Diameter | | Protrusion Allowance | | | | | | |
| | | | Max | Min | Max | Min | #2 Pt. | #3 Pt. | 90° Head, #2 Pt | Csk Head, #2 Pt | 90° Head, #3 Pt | Csk Head, #3 Pt | |
| 2* | 0.086 | 32 | 0.088 | 0.084 | 0.064 | 0.060 | 0.125 | - | 1/4 | 5/16 | - | - | - |
| 4 | 0.112 | 24 | 0.114 | 0.110 | 0.086 | 0.082 | 0.163 | - | 5/16 | 3/8 | - | - | 14 |
| 6 | 0.138 | 20 | 0.139 | 0.135 | 0.104 | 0.099 | 0.190 | 0.220 | 5/16 | 3/8 | 3/8 | 7/16 | 24 |
| 7* | 0.151 | 19 | 0.153 | 0.146 | 0.113 | 0.109 | 0.137 | 0.157 | 5/16 | 3/8 | 3/8 | 7/16 | - |
| 8 | 0.164 | 18 | 0.166 | 0.161 | 0.122 | 0.116 | 0.211 | 0.251 | 3/8 | 7/16 | 7/16 | 1/2 | 42 |
| 10 | 0.190 | 16 | 0.189 | 0.183 | 0.141 | 0.135 | 0.235 | 0.300 | 7/16 | 1/2 | 1/2 | 9/16 | 61 |
| 12 | 0.216 | 14 | 0.215 | 0.209 | 0.164 | 0.157 | 0.283 | 0.353 | 1/2 | 5/8 | 1/2 | 5/8 | 92 |
| 1/4 | 0.250 | 14 | 0.246 | 0.240 | 0.192 | 0.185 | 0.318 | 0.393 | 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 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Major Diameter | | Minor Diameter | | Drill Point Length | | Drill Point Diam- eter | |
| | | | Max | Min | Max | Min | Max | Min | Max | Min |
| 5/16 | 0.313 | 12 | 0.315 | 0.307 | 0.272 | 0.263 | 0.421 | 0.361 | 0.270 | 0.265 |
| 3/8 | 0.375 | 12 | 0.380 | 0.370 | 0.308 | 0.298 | 0.354 | 0.314 | 0.338 | 0.330 |

| | Steel | Stainless |
|---|---|---|
| Description | Type BSD: A tapping screw with spaced threads and a drill point which drills its own hole.<br>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/ Advan- tages | Type BSD: May be used to attach plywood, soft woods or composition board to metal, or attach metal to metal.<br>Type CSD: The finer thread pitch reduces friction and driving torques. Type-CSD screws are normally used with thicker materials.<br>All self-drilling screws offer economical benefits: reduces labor and tooling costs; reduces or eliminates drill bits and taps. | 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.<br>Minimum torques are the same for stainless and steel self-drill screws. Drill time is 2.5 seconds for a 1mm thick plate. |
| Material | AISI 1016 - 1024 or equivalent steel | 410, 18-8 or 316 stainless steel |
| Heat Treatment | Screws shall be quenched in liquid and then tempered by reheating to 625°F minimum. | 410 SS: An ideal method of hardening 410 stainless screws is a bright harden- ing process, which typically involves a vacuum furnace. Another key factor af- fecting hardness is the chemistry of the fastener--most elements have maximum values but not minimums. This fact can contribute to hardness variance.<br>18-8 & 316 SS are only hardenable by cold-working. |
| Case Hardness | Rockwell C52 -58 | - |
| Case Depth | No. 2 thru 6 diameter: .002 - .007<br>No. 8 thru 12 diameter: .004 - .009<br>1/4" diameter and larger: .005 - .011 | - |
| Hardness | Core: Rockwell C32 - 40 (after tempering) | 410 SS: Rockwell C38 - 46 (approx.)<br>18-8 & 316 SS: Rockwell B100 (approx.) |
| Plating | See Appendix-A for plating information. | Stainless drill screws are usually supplied plain. |

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## TYPE-BSD & TYPE-CSD

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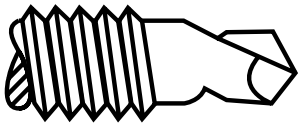


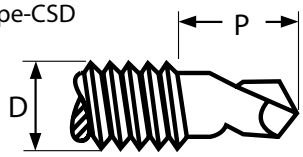
### TYPE BSD SELF-DRILLING SCREW SELECTION CHART

| Nominal Screw Size | Point Number | Recommended Panel Thickness, in. | |
|---|---|---|---|
| | | Min. | Max. |
| 4 | 2 | 0.035 | 0.080 |
| 6 | 2 | 0.035 | 0.090 |
| 8 | 2 | 0.035 | 0.100 |
| 10 | 2 | 0.035 | 0.110 |
| 10 | 3 | 0.110 | 0.175 |
| 12 | 3 | 0.110 | 0.210 |
| 1/4 | 3 | 0.110 | 0.220 |
| This table is only a guide and does not constitute a warranty of any type. | | | |

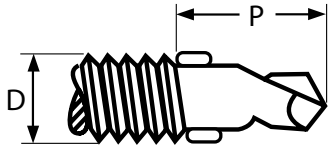
### TYPE CSD SELF DRILLING SCREW SELECTION CHART

| 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 withWings (Type-CSD)




### STEEL SELF-DRILLING SCREWS, TYPE CSD (UNIFIED THREAD) SAE J78-2013

| 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 | 0.112 | 40 | 0.112 | 0.107 | 0.130 | - | 5/16 | - | 3/8 | - | 14 |
| 6 | 0.138 | 32 | 0.138 | 0.133 | 0.152 | 0.172 | 5/16 | 3/8 | 3/8 | 7/16 | 24 |
| 8 | 0.164 | 32 | 0.164 | 0.159 | 0.162 | 0.202 | 7/16 | 1/2 | 7/16 | 1/2 | 48 |
| 10 | 0.190 | 24 | 0.189 | 0.182 | 0.193 | 0.258 | 1/2 | 9/16 | 1/2 | 9/16 | 65 |
| 10 | 0.190 | 32 | 0.189 | 0.183 | 0.193 | 0.258 | 1/2 | 9/16 | 1/2 | 9/16 | - |
| 12 | 0.216 | 24 | 0.216 | 0.209 | 0.223 | 0.293 | 5/8 | 5/8 | 5/8 | 5/8 | 100 |
| 1/4 | 0.250 | 20 | 0.250 | 0.243 | 0.275 | 0.350 | 5/8 | 5/8 | 5/8 | 5/8 | 156 |

| | |
|---|---|
| Description | Reamer w/ 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). |