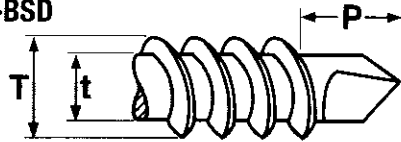


SELF-TAPPING SCREWS

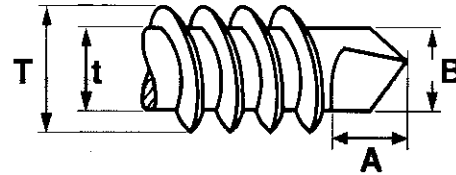
SELF-DRILLING

Type-BSD
Type-CSD

Type-BSD



5/16 & 3/8 Diameter
#3 Point



| SELF-DRILLING SCREWS, TYPE BSD | | | | | | | | | | | | | | SAE J78-1998 |
|--|---------------------|----------------|------|----------------|------|-------------------------|--------|---|--------------------|--------------------|--------------------|--|-----|-----------------|
| 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 | | 90° Head, #2 Pt | Csk Head, #2 Pt | 90° Head, #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 Screw Diameter | Threads Per 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 |
|-------------------------------------|--|--|
| Description | <p>Type BSD: A tapping screw with spaced threads and a drill point which drills its own hole.</p> <p>Type CSD: 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> | |
| Applications/ Advantages | <p>Type BSD: May be used to attach plywood, soft woods or composition board to metal, or attach metal to metal.</p> <p>Type CSD: 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>Type BSD: 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> |
| Material | AISI 1016 - 1024 or equivalent steel | 410 or 18-8 stainless steel |
| Heat Treatment | 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. |
| Case Hardness | Rockwell C52 -58 | 410 SS: Rockwell C55 minimum |
| Case Depth | <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> | |
| Core Hardness | Rockwell C32 - 40 (after tempering) | <p>410 SS: Rockwell C38 - 42 (after tempering)</p> <p>18-8 SS: Rockwell B90 - C25 (approx.)</p> |
| Plating | See Appendix-A for plating information. | Stainless drill screws are usually supplied plain. |

Type-BSD
Type-CSD

SELF-DRILLING



| 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 |

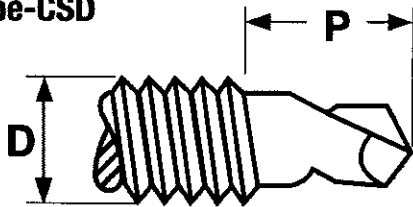
This table is only a guide and does not constitute a warranty of any type.



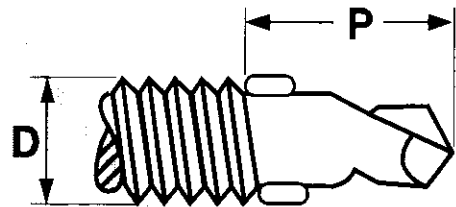
| Screw Size | Maximum Drilling Capacity* |
|-----------------|-------------------------------|
| 10-24 x 3/4" | 1/4" Plywood to .175 Metal |
| 10-24 x 1" | 3/8" Plywood to .175 Metal |
| 10-24 x 1-1/4" | 1/2" Plywood to .175 Metal |
| 10-24 x 1-1/2" | 1/2" Plywood to .175 Metal |
| 10-24 x 1-7/16" |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

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

Type-CSD



Reamer with Wings (Type-CSD)

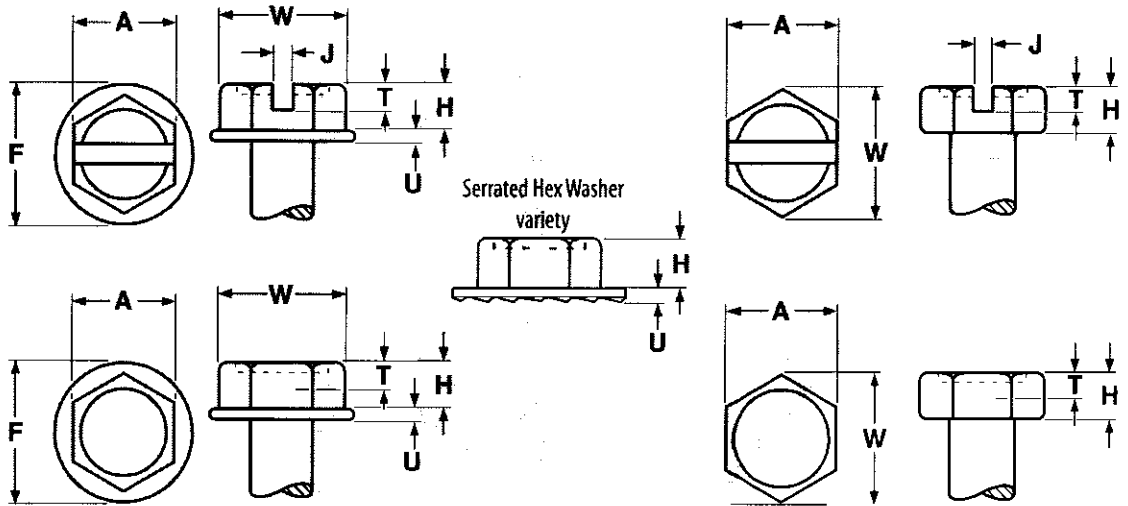


| Nominal Size or Basic Screw Diameter | Threads Per Inch | D | | P | | Minimum Practical Nominal Screw Lengths, Countersunk Heads, Formed Points | | | | Minimum Torsional Strength, lb.- in. (STEEL SCREWS ONLY) | |
|--------------------------------------|------------------|----------------|-------|----------------------|-------|---|-----------------|-----------------|-----------------|--|-----|
| | | 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 |

| | |
|--|--|
| Description | <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. |
| 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). |

Hex & Hex Washer Heads

HEAD DIMENSIONS



| HEX & HEX WASHER HEADS FOR SELF-TAPPING & SELF-DRILLING SCREWS | | | | | | | | | | | | ASME B18.6.3-2010* | | |
|--|--------------------|------|----------------------|------|----------------|-------|--------------------|------|---------------------|------|---------------|--------------------|---------------|--|
| Nominal Size | A | | W | | H | | F | | U | | J | | T | |
| | Width Across Flats | | Width Across Corners | | Height of Head | | Diameter of Washer | | Thickness of Washer | | Width of Slot | | Depth of Slot | |
| | Max | Min | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min | |
| 4 | .188 | .181 | .202 | .060 | .049 | .243 | .225 | .019 | .011 | .039 | .031 | .036 | .025 | |
| 6 | .250 | .244 | .272 | .093 | .080 | .328 | .302 | .025 | .015 | .048 | .039 | .046 | .033 | |
| 7 | .250 | .244 | .272 | .093 | .080 | .328 | .302 | .029 | .017 | .048 | .039 | .054 | .040 | |
| 8 | .250 | .244 | .272 | .110 | .096 | .348 | .322 | .031 | .019 | .054 | .045 | .066 | .052 | |
| 10 | .312 | .305 | .340 | .120 | .105 | .414 | .384 | .031 | .019 | .060 | .050 | .072 | .057 | |
| 12 | .312 | .305 | .340 | .155 | .139 | .432 | .398 | .039 | .022 | .067 | .056 | .093 | .077 | |
| 14 | .375 | .367 | .409 | .190 | .172 | .520 | .480 | .050 | .030 | .075 | .064 | .101 | .083 | |
| 1/4 | .375 | .367 | .409 | .190 | .172 | .520 | .480 | .050 | .030 | .075 | .064 | .101 | .083 | |
| 1/4** | .438 | .428 | .481 | .190 | .172 | .590 | .551 | .050 | .029 | .084 | .064 | .122 | .083 | |
| 5/16** | .438 | .428 | .481 | .230 | .208 | .590 | .551 | .050 | .029 | .084 | .064 | .122 | .083 | |
| 5/16 | .500 | .489 | .545 | .230 | .208 | .676 | .624 | .055 | .035 | .084 | .072 | .122 | .100 | |
| 3/8 | .562 | .551 | .614 | .295 | .270 | .780 | .720 | .063 | .037 | .094 | .081 | .156 | .131 | |
| 1/2* | .750 | .735 | .820 | .400 | .367 | 1.040 | .960 | .085 | .050 | .106 | .091 | .190 | .165 | |

* Slot dimensions for 1/2-inch diameter hex washer head tapping screws are independent of ASME B18.6.3

**Alternative dimensions can be supplied for certain self-tapping and self-drilling screws to minimize tool changes by end-user. This page prints with a watermark