

# SELF-DRILLING SCREWS

Nominal Size or Basic Screw Diameter	Threads Per Inch	Major Diameter		Minor Diameter		Protrusion Allowance		Minimum Practical Nominal Screw Lengths, Formed Points Protrusion Allowance				Minimum Torsional Strength, lbin. (STEEL SCREWS ONLY)	
		Max	Min	Max	Min	#2 Pt.	#3 Pt.	90° Head, #2 Pt	Csk Head, #2 Pt	90° Head, #3 Pt	Csk Head, #3 Pt		
		4	.1120	24	.114	.110	.086	.082	.163	-	5/16		3/8
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

Nominal Size or Basic Screw Diameter	Threads Per Inch	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
3/8	.3750	12	.380	.370	.308	.298	.354	.314	.338	.330

	Steel	Stainless
<b>Description</b>	<p><i>Type BSD:</i> A tapping screw with spaced threads and a drill point which drills its own hole.</p> <p><i>Type CSD:</i> 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/ Advantages</b>	<p><i>Type BSD:</i> May be used to attach plywood, soft woods or composition board to metal, or attach metal to metal. <i>Type CSD:</i> 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. All self-drilling screws offer economic benefits: reduces labor and tooling costs; reduces or eliminates drill bits and taps.</p>	<p><i>Type BSD:</i> 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. Minimum torques is 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 ½ 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>	No. 4 and 6 diameter: .002 - .007 No. 8 thru 12 diameter: .004 - .009 1/4" diameter and larger: .005 - .011	(not tested)
<b>Core Hardness</b>	Rockwell C32 - 40 (after tempering)	410 SS: Rockwell C38 - 42 (after tempering) SS: Rockwell B90 - C25 (approx.)
<b>Plating</b>	See Appendix-A for plating information.	Stainless drill screws are usually supplied plain.