



AISI SCREW CAPACITIES

Common Sizes (#)	Length	Materials and Thickness of Materials that can be Connected
6, 7	3/8" - 7/16"	Steel to steel
6, 8, 10, 12	1/2"	Steel to steel
8, 10	5/8" - 1"	Steel to steel; metal lath to steel
10, 12, 14	3/4" - 1 1/2"	Steel to steel
6, 8	1"	1/2" or 5/8" panels to steel
8, 10, 12	1 1/4"	Self-furring metal lath or masonry ties to steel
10	1 1/2"	Temp., panel-panel lamination
6, 7	1 1/2" - 2"	Multiple layers to steel
6, 7	2 1/4"	Wood trim and 3-layers of panels to steel
8	2" - 3 1/2"	Multiple layers to steel
10	3 1/2" - 6"	Multiple layers to steel
Consult manufacturers for other sizes and lengths.		

Screw Load Capacity and Spacing Requirements

Load carrying capacities of screws should be based on the criteria outlined in the Center for Cold-Formed Steel Structures (CCFSS) Technical Bulletin, Vol. 2, No. 1, dated February 1993, or based on manufacturer's data with an appropriate safety factor. The information included in the Technical Bulletin will be included in future editions of the AISI Specification for Cold-Formed Steel Structural Members (AISI Specification). Table 3 contains some screw capacities based on the CCFSS Technical Bulletin.

A minimum dimension of 3 times nominal screw diameter (d) should be maintained to the edge of the steel and to the center of other fasteners for steel to steel connections. The edge distance may be reduced to 1.5d in the direction perpendicular to the load. Connectors for gypsum wallboard and plywood should not be spaced less than 3/4" from the edges or ends of the board. Additional fastener spacing criteria for gypsum board and plywood can be found in the Gypsum Association Specification (GA-216) and the American Plywood Association's Design and Construction Guide/Residential and Commercial (E-30), respectively. Contact the manufacturer for spacing requirements for other materials.

Driving Techniques for Self-Drilling Screws

Screws are typically installed with hand-held power guns that operate on pneumatic or electrical power.

ALLOWABLE LOADS

Steel Thickness - Thinnest Component	1/4 -14 Screw		#12-14 Screw		#10-16 Screw *		#8-18 Screw *		#6 Screw *	
	Shear	Pullout	Shear	Pullout	Shear	Pullout	Shear	Pullout	Shear	Pullout
0.1017"	1000	320	890	280	780	245	675	210	560	175
0.0713"	600	225	555	195	520	170	470	145	395	125
0.0566"	420	180	390	155	370	135	340	115	310	95
0.0451"	300	140	280	120	260	105	240	90	220	75
0.0347"	200	110	185	95	175	80	165	70	150	60

Notes:

- Design values are based on CCFSS Technical Bulletin Vol. 2, No. 1 which outlines the proposed AISI Specification provisions for screw connections. For shear connections the cold-formed steel section should be evaluated for tension.
- Based on $F_y = 33\text{ksi}$, $F_u = 45\text{ksi}$ minimum. Adjust values for other steel strengths.
- * = Refer to Table 1 for limits on recommended total steel thickness of connected parts.