

# Fasteners (Screws and Welds)

## Screw Table Notes

1. Screw spacing and edge distance shall not be less than  $3 \times d$ . ( $d$  = Nominal screw diameter)
2. The allowable loads are based on the steel properties of the members being connected, per AISI section E4.
3. When connecting materials of different steel thicknesses or tensile strength ( $F_u$ ), the lowest applicable values should be used.
4. The nominal strength of the screw must be at least 3.75 times the allowable loads.
5. Values include a 3.0 factor of safety.
6. Applied loads may be multiplied by 0.75 for seismic or wind loading, per AISI A 5.1.3.
7. Penetration of screws through joined materials should not be less than 3 exposed threads. Screws should be installed and tightened in accordance with screw manufacturer's recommendations.

## Allowable Loads for Screw Connections (lbs/screw)

Steel Mils	Thickness Design (in)	Steel Properties F <sub>y</sub> (ksi) F <sub>u</sub> (ksi)		No. 12 Dia. = 0.216 (in)		No. 10 Dia. = 0.190 (in)		No. 8 Dia. = 0.164 (in)		No. 6 Dia. = 0.139 (in)	
				Shear	Pullout	Shear	Pullout	Shear	Pullout	Shear	Pullout
18	0.0188	33	45					66	39	60	33
27	0.0283	33	45					121	59	111	50
30	0.0312	33	45			151	76	141	65	129	55
33	0.0346	33	45			177	84	164	72	151	61
43	0.0451	33	45	280	124	263	109	244	94	224	79
54	0.0566	33	45	394	156	370	137	344	118		
68	0.0713	33	45	557	196	523	173				

## Weld Table Notes

1. Weld capacities based on AISI, section E2
2. When connecting materials of different steel thicknesses or tensile strength ( $F_u$ ), the lowest applicable values should be used.
3. Values include a 2.5 factor of safety.
4. Based on the minimum allowance load for fillet or flare groove welds, longitudinal or transverse loads.
5. Allowable loads based on E60xx electrodes.
6. For material less than or equal to .1242" thick, drawings show nominal weld size. For such material, the effective throat of the weld shall not be less than the thickness of the thinnest connected part.

## Allowable Loads for Fillet Welds and Flare Groove Welds

Steel Mils	Thickness Design (in)	Steel Properties F <sub>y</sub> (ksi) F <sub>u</sub> (ksi)		Nominal Weld Size	Allowable Load (lb/in)
43	0.0451	33	45	1/16	609
54	0.0566	33	45	3/32	764
68	0.0713	33	45	1/8	963
97	0.1017	33	45	1/8	1373
118	0.1242	33	45	1/8	1677
54	0.0566	50	65	3/32	1104
68	0.0713	50	65	1/8	1390
97	0.1017	50	65	1/8	1983
118	0.1242	50	65	1/8	2422