

Section Properties - Light Gauge and ASTM F1043 Group IC, IV & IV-L Posts											
Post Size	D _p	O.D.	t	E	A	I	S	r	F _y	F _n	M _{allow}
	lbs / ft	in	in	msi	in ²	in ⁴	in ³	in	ksi	ksi	kip-ft
18 Ga											
1-5/8"	0.8	1.660	0.047	29.5	0.238	0.078	0.093	0.571	40.0	50.0	0.23
1-7/8"	0.9	1.900	0.047	29.5	0.274	0.118	0.124	0.655	40.0	50.0	0.31
2-3/8"	1.2	2.375	0.047	29.5	0.344	0.233	0.196	0.823	40.0	50.0	0.49
17 Ga											
1-5/8"	1.0	1.660	0.055	29.5	0.277	0.089	0.108	0.568	40.0	50.0	0.27
1-7/8"	1.1	1.900	0.055	29.5	0.319	0.136	0.143	0.653	40.0	50.0	0.36
2-3/8"	1.4	2.375	0.055	29.5	0.401	0.270	0.227	0.820	40.0	50.0	0.57
16 Ga											
1-5/8"	1.1	1.660	0.065	29.5	0.326	0.104	0.125	0.564	40.0	50.0	0.31
1-7/8"	1.3	1.900	0.065	29.5	0.375	0.158	0.166	0.649	40.0	50.0	0.41
2-3/8"	1.6	2.375	0.065	29.5	0.472	0.315	0.265	0.817	40.0	50.0	0.66
15 Weight / 15 Ga / ASTM F1083 Group IV-L											
1-5/8"	1.2	1.660	0.072	29.5	0.359	0.113	0.137	0.562	50.0	62.5	0.43
1-7/8"	1.4	1.900	0.072	29.5	0.413	0.173	0.182	0.647	50.0	62.5	0.57
2-3/8"	1.9	2.375	0.076	29.5	0.549	0.363	0.306	0.813	50.0	62.5	0.95
20 Weight / ASTM F1083 Group IV											
1-5/8"	1.5	1.660	0.085	29.5	0.421	0.131	0.158	0.558	50.0	62.5	0.49
1-7/8"	1.8	1.900	0.090	29.5	0.512	0.210	0.221	0.641	50.0	62.5	0.69
2-3/8"	2.3	2.375	0.095	29.5	0.680	0.443	0.373	0.807	50.0	62.5	1.16
2-7/8"	3.3	2.875	0.110	29.5	0.956	0.915	0.636	0.978	50.0	62.5	1.98
Post Size	lbs / ft	in	in	msi	in ²	in ⁴	in ³	in	ksi	ksi	kip-ft
	D _p	O.D.	t	E	A	I	S	r	F _y	F _n	M _{allow}

Calculations per AISI S100

$$M_{\text{allow}} = M_{\text{ne}} / \Omega_b \quad \text{Eq. F2.3-1} \quad M_{\text{ne}} = S F_n \quad \text{Eq. F2.3-2} \quad F_n = 1.25 F_y \quad \Omega_b = 1.67 \text{ per §F2.3}$$

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Schedule 20 / ASTM F1083 Group IV											
1-5/8"	1.7	1.660	0.104	29.5	0.508	0.155	0.186	0.551	50.0	62.5	0.58
1-7/8"	2.2	1.900	0.116	29.5	0.650	0.260	0.273	0.632	50.0	62.5	0.85
2-3/8"	2.8	2.375	0.116	29.5	0.823	0.527	0.443	0.800	50.0	62.5	1.38
2-7/8"	3.8	2.875	0.128	29.5	1.105	1.044	0.726	0.972	50.0	62.5	2.27
30 Weight / ASTM F1083 Group IV											
1-5/8"	1.6	1.660	0.095	29.5	0.467	0.144	0.173	0.554	50.0	62.5	0.54
1-7/8"	2.0	1.900	0.105	29.5	0.592	0.239	0.252	0.636	50.0	62.5	0.79
2-3/8"	2.8	2.375	0.115	29.5	0.816	0.523	0.440	0.800	50.0	62.5	1.37
2-7/8"	3.8	2.875	0.130	29.5	1.121	1.058	0.736	0.972	50.0	62.5	2.30
40 Weight / ASTM F1083 Group 1C / 50 ksi											
1-5/8"	1.8	1.660	0.111	29.5	0.540	0.163	0.196	0.549	50.0	62.5	0.61
1-7/8"	2.3	1.900	0.120	29.5	0.671	0.267	0.281	0.631	50.0	62.5	0.88
2-3/8"	3.1	2.375	0.130	29.5	0.917	0.580	0.488	0.795	50.0	62.5	1.52
2-7/8"	4.6	2.875	0.160	29.5	1.365	1.262	0.878	0.962	50.0	62.5	2.74
3-1/2"	5.7	3.500	0.160	29.5	1.679	2.346	1.341	1.182	50.0	62.5	4.18
4"	6.6	4.000	0.160	29.5	1.930	3.564	1.782	1.359	50.0	62.5	5.56
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	D _p	O.D.	t	E	A	I	S	r	F _y	F _n	M _{allow}

Calculations per AISI S100

$$M_{allow} = M_{ne} / \Omega_b \quad \text{Eq. F2.3-1} \quad M_{ne} = S F_n \quad \text{Eq. F2.3-2} \quad F_n = 1.25 F_y \quad \Omega_b = 1.67 \text{ per §F2.3}$$