

KL/r	F_e	$F_y=36$ ksi			KL/r	$F_y=50$ ksi		
		F_{cr} (ksi)	F_{cr}/Ω_c (ksi)	$\phi_c F_{cr}$ (ksi)		F_{cr} (ksi)	F_{cr}/Ω_c (ksi)	$\phi_c F_{cr}$ (ksi)
			ASD	LRFD			ASD	LRFD
0	∞	36.0	21.6	32.4	0	50.0	29.9	45.0
1	286218.5	36.0	21.6	32.4	1	50.0	29.9	45.0
2	71554.6	36.0	21.6	32.4	2	50.0	29.9	45.0
3	31802.1	36.0	21.5	32.4	3	50.0	29.9	45.0
4	17888.7	36.0	21.5	32.4	4	49.9	29.9	44.9
5	11448.7	36.0	21.5	32.4	5	49.9	29.9	44.9
6	7950.5	35.9	21.5	32.3	6	49.9	29.9	44.9
7	5841.2	35.9	21.5	32.3	7	49.8	29.8	44.8
8	4472.2	35.9	21.5	32.3	8	49.8	29.8	44.8
9	3533.6	35.8	21.5	32.3	9	49.7	29.8	44.7
10	2862.2	35.8	21.4	32.2	10	49.6	29.7	44.7
11	2365.4	35.8	21.4	32.2	11	49.6	29.7	44.6
12	1987.6	35.7	21.4	32.2	12	49.5	29.6	44.5
13	1693.6	35.7	21.4	32.1	13	49.4	29.6	44.4
14	1460.3	35.6	21.3	32.1	14	49.3	29.5	44.4
15	1272.1	35.6	21.3	32.0	15	49.2	29.5	44.3
16	1118.0	35.5	21.3	32.0	16	49.1	29.4	44.2
17	990.4	35.5	21.2	31.9	17	49.0	29.3	44.1
18	883.4	35.4	21.2	31.9	18	48.8	29.2	43.9
19	792.8	35.3	21.2	31.8	19	48.7	29.2	43.8
20	715.5	35.2	21.1	31.7	20	48.6	29.1	43.7
21	649.0	35.2	21.1	31.7	21	48.4	29.0	43.6
22	591.4	35.1	21.0	31.6	22	48.3	28.9	43.4
23	541.1	35.0	21.0	31.5	23	48.1	28.8	43.3
24	496.9	34.9	20.9	31.4	24	47.9	28.7	43.1
25	457.9	34.8	20.9	31.4	25	47.8	28.6	43.0
26	423.4	34.7	20.8	31.3	26	47.6	28.5	42.8
27	392.6	34.6	20.7	31.2	27	47.4	28.4	42.7
28	365.1	34.5	20.7	31.1	28	47.2	28.3	42.5
29	340.3	34.4	20.6	31.0	29	47.0	28.2	42.3
30	318.0	34.3	20.6	30.9	30	46.8	28.0	42.1
31	297.8	34.2	20.5	30.8	31	46.6	27.9	41.9
32	279.5	34.1	20.4	30.7	32	46.4	27.8	41.8
33	262.8	34.0	20.4	30.6	33	46.2	27.6	41.6
34	247.6	33.9	20.3	30.5	34	45.9	27.5	41.4
35	233.6	33.8	20.2	30.4	35	45.7	27.4	41.1
36	220.8	33.6	20.1	30.3	36	45.5	27.2	40.9
37	209.1	33.5	20.1	30.1	37	45.2	27.1	40.7
38	198.2	33.4	20.0	30.0	38	45.0	26.9	40.5
39	188.2	33.2	19.9	29.9	39	44.7	26.8	40.3
40	178.9	33.1	19.8	29.8	40	44.5	26.6	40.0
41	170.3	33.0	19.7	29.7	41	44.2	26.5	39.8
42	162.3	32.8	19.6	29.5	42	43.9	26.3	39.6
43	154.8	32.7	19.6	29.4	43	43.7	26.2	39.3
44	147.8	32.5	19.5	29.3	44	43.4	26.0	39.1
45	141.3	32.4	19.4	29.1	45	43.1	25.8	38.8

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		F_{cr} (ksi)	F_{cr}/Ω_c (ksi)	$\phi_c F_{cr}$ (ksi)		F_{cr} (ksi)	F_{cr}/Ω_c (ksi)	$\phi_c F_{cr}$ (ksi)
			ASD	LRFD			ASD	LRFD
46	135.3	32.2	19.3	29.0	46	42.8	25.6	38.5
47	129.6	32.0	19.2	28.8	47	42.5	25.5	38.3
48	124.2	31.9	19.1	28.7	48	42.2	25.3	38.0
49	119.2	31.7	19.0	28.6	49	41.9	25.1	37.8
50	114.5	31.6	18.9	28.4	50	41.6	24.9	37.5
51	110.0	31.4	18.8	28.3	51	41.3	24.8	37.2
52	105.9	31.2	18.7	28.1	52	41.0	24.6	36.9
53	101.9	31.1	18.6	27.9	53	40.7	24.4	36.6
54	98.2	30.9	18.5	27.8	54	40.4	24.2	36.4
55	94.6	30.7	18.4	27.6	55	40.1	24.0	36.1
56	91.3	30.5	18.3	27.5	56	39.8	23.8	35.8
57	88.1	30.3	18.2	27.3	57	39.4	23.6	35.5
58	85.1	30.2	18.1	27.1	58	39.1	23.4	35.2
59	82.2	30.0	17.9	27.0	59	38.8	23.2	34.9
60	79.5	29.8	17.8	26.8	60	38.4	23.0	34.6
61	76.9	29.6	17.7	26.6	61	38.1	22.8	34.3
62	74.5	29.4	17.6	26.5	62	37.7	22.6	34.0
63	72.1	29.2	17.5	26.3	63	37.4	22.4	33.7
64	69.9	29.0	17.4	26.1	64	37.1	22.2	33.4
65	67.7	28.8	17.3	25.9	65	36.7	22.0	33.0
66	65.7	28.6	17.1	25.8	66	36.4	21.8	32.7
67	63.8	28.4	17.0	25.6	67	36.0	21.6	32.4
68	61.9	28.2	16.9	25.4	68	35.7	21.4	32.1
69	60.1	28.0	16.8	25.2	69	35.3	21.1	31.8
70	58.4	27.8	16.7	25.0	70	34.9	20.9	31.4
71	56.8	27.6	16.5	24.8	71	34.6	20.7	31.1
72	55.2	27.4	16.4	24.7	72	34.2	20.5	30.8
73	53.7	27.2	16.3	24.5	73	33.9	20.3	30.5
74	52.3	27.0	16.2	24.3	74	33.5	20.1	30.2
75	50.9	26.8	16.0	24.1	75	33.1	19.8	29.8
76	49.6	26.6	15.9	23.9	76	32.8	19.6	29.5
77	48.3	26.3	15.8	23.7	77	32.4	19.4	29.2
78	47.0	26.1	15.6	23.5	78	32.0	19.2	28.8
79	45.9	25.9	15.5	23.3	79	31.7	19.0	28.5
80	44.7	25.7	15.4	23.1	80	31.3	18.8	28.2
81	43.6	25.5	15.3	22.9	81	30.9	18.5	27.9
82	42.6	25.3	15.1	22.7	82	30.6	18.3	27.5
83	41.5	25.0	15.0	22.5	83	30.2	18.1	27.2
84	40.6	24.8	14.9	22.3	84	29.8	17.9	26.9
85	39.6	24.6	14.7	22.1	85	29.5	17.7	26.5
86	38.7	24.4	14.6	22.0	86	29.1	17.4	26.2
87	37.8	24.2	14.5	21.8	87	28.7	17.2	25.9
88	37.0	23.9	14.3	21.6	88	28.4	17.0	25.5
89	36.1	23.7	14.2	21.4	89	28.0	16.8	25.2
90	35.3	23.5	14.1	21.2	90	27.7	16.6	24.9
91	34.6	23.3	13.9	21.0	91	27.3	16.3	24.6

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		F_{cr} (ksi)	F_{cr}/Ω_c (ksi)	$\phi_c F_{cr}$ (ksi)		F_{cr} (ksi)	F_{cr}/Ω_c (ksi)	$\phi_c F_{cr}$ (ksi)
			ASD	LRFD			ASD	LRFD
92	33.8	23.1	13.8	20.8	92	26.9	16.1	24.2
93	33.1	22.8	13.7	20.5	93	26.6	15.9	23.9
94	32.4	22.6	13.5	20.3	94	26.2	15.7	23.6
95	31.7	22.4	13.4	20.1	95	25.8	15.5	23.3
96	31.1	22.2	13.3	19.9	96	25.5	15.3	22.9
97	30.4	21.9	13.1	19.7	97	25.1	15.0	22.6
98	29.8	21.7	13.0	19.5	98	24.8	14.8	22.3
99	29.2	21.5	12.9	19.3	99	24.4	14.6	22.0
100	28.6	21.3	12.7	19.1	100	24.1	14.4	21.7
101	28.1	21.0	12.6	18.9	101	23.7	14.2	21.3
102	27.5	20.8	12.5	18.7	102	23.4	14.0	21.0
103	27.0	20.6	12.3	18.5	103	23.0	13.8	20.7
104	26.5	20.4	12.2	18.3	104	22.7	13.6	20.4
105	26.0	20.1	12.1	18.1	105	22.3	13.4	20.1
106	25.5	19.9	11.9	17.9	106	22.0	13.2	19.8
107	25.0	19.7	11.8	17.7	107	21.6	13.0	19.5
108	24.5	19.5	11.7	17.5	108	21.3	12.8	19.2
109	24.1	19.3	11.5	17.3	109	21.0	12.6	18.9
110	23.7	19.0	11.4	17.1	110	20.6	12.4	18.6
111	23.2	18.8	11.3	16.9	111	20.3	12.2	18.3
112	22.8	18.6	11.1	16.7	112	20.0	12.0	18.0
113	22.4	18.4	11.0	16.5	113	19.7	11.8	17.7
114	22.0	18.2	10.9	16.3	114	19.3	11.6	17.4
115	21.6	17.9	10.7	16.2	115	19.0	11.4	17.1
116	21.3	17.7	10.6	16.0	116	18.7	11.2	16.8
117	20.9	17.5	10.5	15.8	117	18.3	11.0	16.5
118	20.6	17.3	10.4	15.6	118	18.0	10.8	16.2
119	20.2	17.1	10.2	15.4	119	17.7	10.6	16.0
120	19.9	16.9	10.1	15.2	120	17.4	10.4	15.7
121	19.5	16.7	10.0	15.0	121	17.1	10.3	15.4
122	19.2	16.4	9.85	14.8	122	16.9	10.1	15.2
123	18.9	16.2	9.72	14.6	123	16.6	9.94	14.9
124	18.6	16.0	9.59	14.4	124	16.3	9.78	14.7
125	18.3	15.8	9.47	14.2	125	16.1	9.62	14.5
126	18.0	15.6	9.35	14.0	126	15.8	9.47	14.2
127	17.7	15.4	9.22	13.9	127	15.6	9.32	14.0
128	17.5	15.2	9.10	13.7	128	15.3	9.17	13.8
129	17.2	15.0	8.98	13.5	129	15.1	9.03	13.6
130	16.9	14.8	8.86	13.3	130	14.9	8.89	13.4
131	16.7	14.6	8.73	13.1	131	14.6	8.76	13.2
132	16.4	14.4	8.61	12.9	132	14.4	8.63	13.0
133	16.2	14.2	8.49	12.8	133	14.2	8.50	12.8
134	15.9	14.0	8.37	12.6	134	14.0	8.37	12.6
135	15.7	13.8	8.25	12.4	135	13.8	8.25	12.4
136	15.5	13.6	8.13	12.2	136	13.6	8.13	12.2
137	15.2	13.4	8.01	12.0	137	13.4	8.01	12.0

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			ASD	LRFD			ASD	LRFD
138	15.0	13.2	7.89	11.9	138	13.2	7.89	11.9
139	14.8	13.0	7.78	11.7	139	13.0	7.78	11.7
140	14.6	12.8	7.67	11.5	140	12.8	7.67	11.5
141	14.4	12.6	7.56	11.4	141	12.6	7.56	11.4
142	14.2	12.4	7.45	11.2	142	12.4	7.45	11.2
143	14.0	12.3	7.35	11.0	143	12.3	7.35	11.0
144	13.8	12.1	7.25	10.9	144	12.1	7.25	10.9
145	13.6	11.9	7.15	10.7	145	11.9	7.15	10.7
146	13.4	11.8	7.05	10.6	146	11.8	7.05	10.6
147	13.2	11.6	6.96	10.5	147	11.6	6.96	10.5
148	13.1	11.5	6.86	10.3	148	11.5	6.86	10.3
149	12.9	11.3	6.77	10.2	149	11.3	6.77	10.2
150	12.7	11.2	6.68	10.0	150	11.2	6.68	10.0
151	12.6	11.0	6.59	9.91	151	11.0	6.59	9.91
152	12.4	10.9	6.51	9.78	152	10.9	6.51	9.78
153	12.2	10.7	6.42	9.65	153	10.7	6.42	9.65
154	12.1	10.6	6.34	9.53	154	10.6	6.34	9.53
155	11.9	10.4	6.26	9.40	155	10.4	6.26	9.40
156	11.8	10.3	6.18	9.28	156	10.3	6.18	9.28
157	11.6	10.2	6.10	9.17	157	10.2	6.10	9.17
158	11.5	10.1	6.02	9.05	158	10.1	6.02	9.05
159	11.3	9.93	5.95	8.94	159	9.93	5.95	8.94
160	11.2	9.81	5.87	8.82	160	9.81	5.87	8.82
161	11.0	9.68	5.80	8.72	161	9.68	5.80	8.72
162	10.9	9.56	5.73	8.61	162	9.56	5.73	8.61
163	10.8	9.45	5.66	8.50	163	9.45	5.66	8.50
164	10.6	9.33	5.59	8.40	164	9.33	5.59	8.40
165	10.5	9.22	5.52	8.30	165	9.22	5.52	8.30
166	10.4	9.11	5.45	8.20	166	9.11	5.45	8.20
167	10.3	9.00	5.39	8.10	167	9.00	5.39	8.10
168	10.1	8.89	5.33	8.00	168	8.89	5.33	8.00
169	10.0	8.79	5.26	7.91	169	8.79	5.26	7.91
170	9.90	8.69	5.20	7.82	170	8.69	5.20	7.82
171	9.79	8.58	5.14	7.73	171	8.58	5.14	7.73
172	9.67	8.48	5.08	7.64	172	8.48	5.08	7.64
173	9.56	8.39	5.02	7.55	173	8.39	5.02	7.55
174	9.45	8.29	4.96	7.46	174	8.29	4.96	7.46
175	9.35	8.20	4.91	7.38	175	8.20	4.91	7.38
176	9.24	8.10	4.85	7.29	176	8.10	4.85	7.29
177	9.14	8.01	4.80	7.21	177	8.01	4.80	7.21
178	9.03	7.92	4.74	7.13	178	7.92	4.74	7.13
179	8.93	7.83	4.69	7.05	179	7.83	4.69	7.05
180	8.83	7.75	4.64	6.97	180	7.75	4.64	6.97
181	8.74	7.66	4.59	6.90	181	7.66	4.59	6.90
182	8.64	7.58	4.54	6.82	182	7.58	4.54	6.82
183	8.55	7.50	4.49	6.75	183	7.50	4.49	6.75

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			ASD	LRFD			ASD	LRFD
184	8.45	7.41	4.44	6.67	184	7.41	4.44	6.67
185	8.36	7.33	4.39	6.60	185	7.33	4.39	6.60
186	8.27	7.26	4.34	6.53	186	7.26	4.34	6.53
187	8.18	7.18	4.30	6.46	187	7.18	4.30	6.46
188	8.10	7.10	4.25	6.39	188	7.10	4.25	6.39
189	8.01	7.03	4.21	6.32	189	7.03	4.21	6.32
190	7.93	6.95	4.16	6.26	190	6.95	4.16	6.26
191	7.85	6.88	4.12	6.19	191	6.88	4.12	6.19
192	7.76	6.81	4.08	6.13	192	6.81	4.08	6.13
193	7.68	6.74	4.04	6.06	193	6.74	4.04	6.06
194	7.60	6.67	3.99	6.00	194	6.67	3.99	6.00
195	7.53	6.60	3.95	5.94	195	6.60	3.95	5.94
196	7.45	6.53	3.91	5.88	196	6.53	3.91	5.88
197	7.38	6.47	3.87	5.82	197	6.47	3.87	5.82
198	7.30	6.40	3.83	5.76	198	6.40	3.83	5.76
199	7.23	6.34	3.80	5.70	199	6.34	3.80	5.70
200	7.16	6.28	3.76	5.65	200	6.28	3.76	5.65