

Single Loose Tube Figure 8 – Sag and Tension Guide

Part Number 51xxxxM0

Initial Sag and Tension¹

Span ft	1 to 12 Fibers											
	0°F		20°F		40°F		60°F		80°F		100°F	
	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in
100	499	5.8	413	7.9	327	9.9	241	12.0	155	14.1	70	16.1
125	567	8.0	479	10.3	390	12.7	302	15.0	213	17.3	124	19.7
150	635	10.3	544	12.8	453	15.4	362	18.0	271	20.6	180	23.2
175	702	12.6	608	15.4	515	18.2	422	21.0	329	23.8	236	26.6
200	768	15.1	673	18.1	578	21.0	483	24.0	387	27.0	292	29.9
225	833	17.6	736	20.7	640	23.9	543	27.0	446	30.1	349	33.3
250	898	20.1	800	23.4	701	26.7	603	30.0	505	33.3	407	36.6
275	962	22.7	863	26.2	763	29.6	663	33.0	564	36.4	464	39.8
300	1027	25.4	926	28.9	825	32.5	724	36.0	623	39.5	522	43.1
325	1090	28.0	988	31.7	886	35.3	784	39.0	682	42.7	580	46.3
350	1154	30.7	1051	34.5	948	38.2	844	42.0	741	45.8	638	49.5
375	1217	33.4	1113	37.3	1009	41.1	905	45.0	801	48.9	696	52.7
400	1280	36.2	1175	40.1	1070	44.1	965	48.0	860	51.9	755	55.9
425	1343	38.9	1237	43.0	1131	47.0	1025	51.0	919	55.0	814	59.0
450	1406	41.7	1299	45.8	1192	49.9	1086	54.0	979	58.1	872	62.2
475	1468	44.5	1361	48.7	1253	52.8	1146	57.0	1039	61.2	931	65.3
500	1531	47.3	1422	51.5	1314	55.8	1206	60.0	1098	64.2	990	68.5
525	1593	50.1	1484	54.4	1375	58.7	1267	63.0	1158	67.3	1049	71.6
550	1655	52.9	1546	57.3	1436	61.6	1327	66.0	1218	70.4	1108	74.7
575	1717	55.7	1607	60.2	1497	64.6	1387	69.0	1277	73.4	1167	77.8
600	1779	58.6	1668	63.1	1558	67.5	1448	72.0	1337	76.5	1227	80.9
625	1841	61.4	1730	66.0	1619	70.5	1508	75.0	1397	79.5	1286	84.0
650	1903	64.3	1791	68.9	1680	73.4	1568	78.0	1457	82.6	1345	87.1
675	1964	67.2	1852	71.8	1740	76.4	1628	81.0	1517	85.6	1405	90.2
700	2026	70.0	1913	74.7	1801	79.3	1689	84.0	1576	88.7	1464	93.3

Span ft	13 to 48 Fibers											
	0°F		20°F		40°F		60°F		80°F		100°F	
	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in
100	517	6.0	431	8.0	344	10.0	258	12.0	171	14.0	84	16.0
125	590	8.2	501	10.5	411	12.7	322	15.0	232	17.3	143	19.5
150	662	10.5	570	13.0	478	15.5	386	18.0	294	20.5	202	23.0
175	733	12.9	639	15.6	545	18.3	451	21.0	357	23.7	262	26.4
200	803	15.4	707	18.3	611	21.1	515	24.0	419	26.9	323	29.7
225	872	17.9	775	21.0	677	24.0	579	27.0	482	30.0	384	33.0
250	941	20.5	842	23.7	743	26.8	644	30.0	545	33.2	445	36.3
275	1010	23.1	909	26.4	809	29.7	708	33.0	608	36.3	507	39.6
300	1078	25.8	976	29.2	874	32.6	773	36.0	671	39.4	569	42.8
325	1146	28.5	1043	32.0	940	35.5	837	39.0	734	42.5	631	46.0
350	1214	31.2	1109	34.8	1005	38.4	901	42.0	797	45.6	693	49.2
375	1281	33.9	1176	37.6	1071	41.3	966	45.0	861	48.7	756	52.4
400	1348	36.7	1242	40.5	1136	44.2	1030	48.0	924	51.8	818	55.5
425	1415	39.5	1308	43.3	1201	47.2	1094	51.0	988	54.8	881	58.7
450	1481	42.2	1374	46.2	1266	50.1	1159	54.0	1051	57.9	944	61.8
475	1548	45.0	1440	49.0	1331	53.0	1223	57.0	1115	61.0	1007	65.0
500	1614	47.9	1505	51.9	1396	56.0	1288	60.0	1179	64.0	1070	68.1
525	1681	50.7	1571	54.8	1461	58.9	1352	63.0	1242	67.1	1133	71.2
550	1747	53.5	1637	57.7	1526	61.8	1416	66.0	1306	70.2	1196	74.3
575	1813	56.4	1702	60.6	1591	64.8	1481	69.0	1370	73.2	1259	77.4
600	1879	59.2	1768	63.5	1656	67.7	1545	72.0	1434	76.3	1322	80.5
625	1945	62.1	1833	66.4	1721	70.7	1609	75.0	1498	79.3	1386	83.6
650	2011	64.9	1898	69.3	1786	73.6	1674	78.0	1561	82.4	1449	86.7
675	2076	67.8	1964	72.2	1851	76.6	1738	81.0	1625	85.4	1513	89.8
700	2142	70.7	2029	75.1	1916	79.6	1803	84.0	1689	88.4	1576	92.9

Span ft	49 to 96 Fibers											
	0°F		20°F		40°F		60°F		80°F		100°F	
	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in
100	582	6.5	493	8.3	404	10.2	315	12.0	226	13.8	137	15.7
125	670	8.8	578	10.9	486	12.9	394	15.0	302	17.1	209	19.1
150	757	11.2	662	13.5	567	15.7	473	18.0	378	20.3	283	22.5
175	842	13.7	745	16.2	648	18.6	551	21.0	454	23.4	357	25.8
200	927	16.3	828	18.9	729	21.4	630	24.0	531	26.6	432	29.1
225	1011	18.9	910	21.6	809	24.3	709	27.0	608	29.7	507	32.4
250	1094	21.6	992	24.4	890	27.2	788	30.0	685	32.8	583	35.6
275	1177	24.3	1073	27.2	970	30.1	866	33.0	763	35.9	659	38.8
300	1259	27.0	1155	30.0	1050	33.0	945	36.0	840	39.0	735	42.0
325	1341	29.8	1236	32.8	1130	35.9	1024	39.0	918	42.1	812	45.2
350	1423	32.5	1316	35.7	1209	38.8	1103	42.0	996	45.2	889	48.3
375	1505	35.3	1397	38.6	1289	41.8	1181	45.0	1073	48.2	966	51.4
400	1586	38.1	1477	41.4	1369	44.7	1260	48.0	1151	51.3	1043	54.6
425	1667	41.0	1558	44.3	1448	47.7	1339	51.0	1229	54.3	1120	57.7
450	1748	43.8	1638	47.2	1528	50.6	1418	54.0	1307	57.4	1197	60.8
475	1829	46.6	1718	50.1	1607	53.5	1496	57.0	1385	60.5	1274	63.9
500	1910	49.5	1798	53.0	1687	56.5	1575	60.0	1463	63.5	1352	67.0
525	1990	52.4	1878	55.9	1766	59.5	1654	63.0	1542	66.5	1430	70.1
550	2071	55.2	1958	58.8	1845	62.4	1733	66.0	1620	69.6	1507	73.2
575	2151	58.1	2038	61.7	1924	65.4	1811	69.0	1698	72.6	1585	76.3
600	2231	61.0	2117	64.7	2004	68.3	1890	72.0	1776	75.7	1663	79.3
625	2311	63.9	2197	67.6	2083	71.3	1969	75.0	1855	78.7	1740	82.4
650	2391	66.8	2277	70.5	2162	74.3	2048	78.0	1933	81.7	1818	85.5
675	2471	69.7	2356	73.5	2241	77.2	2126	81.0	2011	84.8	1896	88.5
700	2551	72.6	2436	76.4	2320	80.2	2205	84.0	2090	87.8	1974	91.6

NESC Ice and Wind Loading Districts¹

Span ft	1 to 12 Fibers															
	Heavy Plus ²				Heavy				Medium				Light			
	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs
100	25.9	10.0	27.7	1383	16.4	9.8	19.1	897	11.8	9.8	15.4	645	5.1	15.1	16.0	570
125	34.9	13.5	37.5	1599	22.2	13.3	25.9	1034	15.9	13.2	20.7	749	6.8	20.1	21.2	670
150	44.6	17.3	47.8	1803	28.3	17.1	33.1	1164	20.2	16.8	26.2	849	8.5	25.3	26.7	765
175	54.8	21.2	58.8	1997	34.8	21.0	40.7	1289	24.7	20.5	32.1	946	10.3	30.8	32.5	858
200	65.5	25.3	70.2	2183	41.6	25.1	48.6	1410	29.3	24.4	38.1	1039	12.2	36.4	38.4	947
225	76.6	29.6	82.1	2363	48.7	29.3	56.8	1526	34.1	28.4	44.4	1130	14.2	42.2	44.5	1035
250	88.1	34.1	94.4	2537	55.9	33.7	65.3	1640	39.1	32.5	50.8	1219	16.2	48.1	50.7	1120
275	99.9	38.7	107.1	2706	63.4	38.1	74.0	1751	44.1	36.6	57.4	1306	18.2	54.1	57.1	1204
300	112.0	43.4	120.1	2871	71.0	42.7	82.9	1859	49.3	40.9	64.1	1392	20.3	60.3	63.6	1286
325	124.5	48.2	133.5	3032	78.8	47.5	92.0	1965	54.5	45.3	70.9	1476	22.4	66.6	70.2	1368
350	137.3	53.1	147.2	3190	86.8	52.3	101.3	2070	59.9	49.7	77.8	1559	24.5	72.9	76.9	1448
375	-	-	-	-	94.9	57.2	110.8	2173	65.3	54.3	84.9	1641	26.7	79.4	83.7	1527
400	-	-	-	-	103.2	62.1	120.5	2274	70.8	58.8	92.1	1722	28.9	85.9	90.6	1605
425	-	-	-	-	111.6	67.2	130.3	2373	76.4	63.5	99.3	1802	31.1	92.5	97.6	1682
450	-	-	-	-	120.2	72.3	140.3	2472	82.0	68.2	106.6	1881	33.3	99.2	104.7	1759
475	-	-	-	-	128.8	77.6	150.4	2569	87.7	72.9	114.1	1959	35.6	106.0	111.8	1835
500	-	-	-	-	137.6	82.8	160.6	2665	93.5	77.7	121.6	2037	37.9	112.8	119.0	1910
525	-	-	-	-	146.5	88.2	171.0	2760	99.3	82.5	129.1	2114	40.2	119.7	126.3	1984
550	-	-	-	-	155.5	93.6	181.5	2854	105.2	87.4	136.8	2191	42.5	126.6	133.6	2059
575	-	-	-	-	164.6	99.1	192.1	2947	111.1	92.3	144.5	2267	44.9	133.6	141.0	2132
600	-	-	-	-	173.7	104.6	202.8	3039	117.1	97.3	152.3	2342	47.3	140.7	148.4	2205
625	-	-	-	-	183.0	110.2	213.6	3131	123.1	102.3	160.1	2417	49.6	147.8	155.9	2278
650	-	-	-	-	192.4	115.8	224.6	3221	129.2	107.4	168.0	2491	52.0	154.9	163.4	2351
675	-	-	-	-	201.8	121.5	235.6	3311	135.3	112.4	175.9	2565	54.5	162.1	171.0	2422
700	-	-	-	-	-	-	-	-	141.5	117.5	183.9	2639	56.9	169.3	178.6	2494

13 to 48 Fibers																
Span ft	Heavy Plus ²				Heavy				Medium				Light			
	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs
100	26.1	10.0	28.0	1417	16.7	9.9	19.4	926	12.1	9.9	15.6	670	5.2	15.5	16.3	600
125	35.3	13.5	37.8	1639	22.6	13.4	26.2	1068	16.2	13.3	21.0	780	6.8	20.6	21.7	706
150	45.1	17.2	48.3	1849	28.8	17.1	33.5	1203	20.6	16.9	26.6	884	8.6	25.9	27.3	807
175	55.4	21.1	59.3	2049	35.4	21.0	41.2	1333	25.2	20.6	32.5	985	10.5	31.5	33.2	904
200	66.2	25.2	70.8	2240	42.3	25.0	49.1	1459	29.9	24.5	38.6	1083	12.4	37.2	39.2	999
225	77.3	29.5	82.8	2425	49.4	29.3	57.4	1580	34.8	28.5	44.9	1179	14.3	43.1	45.4	1092
250	88.9	33.9	95.2	2605	56.8	33.6	66.0	1698	39.8	32.6	51.4	1272	16.3	49.1	51.8	1182
275	100.8	38.5	107.9	2779	64.3	38.1	74.7	1814	44.9	36.8	58.0	1363	18.4	55.3	58.3	1271
300	113.1	43.1	121.0	2949	72.0	42.7	83.7	1927	50.1	41.1	64.8	1453	20.5	61.6	64.9	1358
325	125.7	47.9	134.5	3115	80.0	47.3	92.9	2037	55.5	45.4	71.7	1542	22.6	68.0	71.7	1444
350	138.5	52.8	148.2	3277	88.0	52.1	102.3	2146	60.9	49.9	78.7	1629	24.8	74.5	78.5	1528
375	-	-	-	-	96.2	57.0	111.9	2253	66.4	54.4	85.8	1715	27.0	81.1	85.4	1612
400	-	-	-	-	104.6	61.9	121.6	2359	71.9	58.9	93.0	1800	29.2	87.7	92.5	1695
425	-	-	-	-	113.1	67.0	131.5	2463	77.6	63.6	100.3	1884	31.4	94.5	99.6	1777
450	-	-	-	-	121.7	72.1	141.5	2565	83.3	68.2	107.7	1967	33.7	101.3	106.7	1858
475	-	-	-	-	130.5	77.3	151.6	2667	89.1	73.0	115.2	2050	36.0	108.2	114.0	1938
500	-	-	-	-	139.3	82.5	161.9	2767	94.9	77.8	122.7	2132	38.3	115.1	121.3	2018
525	-	-	-	-	148.3	87.8	172.4	2866	100.8	82.6	130.3	2213	40.6	122.1	128.7	2097
550	-	-	-	-	157.4	93.2	182.9	2964	106.8	87.5	138.0	2293	43.0	129.2	136.2	2176
575	-	-	-	-	166.6	98.6	193.6	3061	112.8	92.4	145.8	2373	45.3	136.3	143.7	2254
600	-	-	-	-	175.8	104.1	204.3	3158	118.8	97.3	153.6	2453	47.7	143.5	151.2	2331
625	-	-	-	-	185.2	109.6	215.2	3253	124.9	102.3	161.4	2532	50.1	150.7	158.8	2408
650	-	-	-	-	-	-	-	-	131.0	107.3	169.4	2610	52.5	158.0	166.5	2485
675	-	-	-	-	-	-	-	-	137.2	112.4	177.3	2688	55.0	165.3	174.2	2561
700	-	-	-	-	-	-	-	-	143.4	117.5	185.4	2766	57.4	172.6	181.9	2637

49 to 96 Fibers																
Span ft	Heavy Plus ²				Heavy				Medium				Light			
	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs
100	26.7	9.8	28.5	1509	17.3	9.8	19.9	1007	12.7	9.8	16.1	744	5.6	16.0	16.9	681
125	36.1	13.3	38.4	1748	23.4	13.2	26.8	1165	17.0	13.2	21.5	869	7.4	21.2	22.4	802
150	46.0	16.9	49.0	1974	29.8	16.8	34.2	1315	21.5	16.7	27.2	988	9.3	26.6	28.2	919
175	56.4	20.7	60.1	2189	36.5	20.6	42.0	1460	26.2	20.4	33.2	1103	11.2	32.3	34.2	1032
200	67.4	24.8	71.8	2396	43.6	24.6	50.0	1599	31.1	24.1	39.3	1215	13.2	38.1	40.3	1141
225	78.7	28.9	83.8	2596	50.8	28.7	58.3	1735	36.1	28.0	45.7	1324	15.3	44.1	46.7	1248
250	90.4	33.2	96.3	2790	58.3	32.9	66.9	1867	41.2	32.0	52.2	1431	17.5	50.2	53.1	1353
275	102.4	37.7	109.1	2979	66.0	37.2	75.8	1996	46.4	36.1	58.8	1536	19.6	56.4	59.8	1456
300	114.8	42.2	122.3	3163	73.8	41.7	84.8	2123	51.8	40.2	65.6	1639	21.8	62.8	66.5	1558
325	X	X	X	X	81.9	46.2	94.0	2247	57.2	44.5	72.5	1741	24.1	69.2	73.3	1658
350	X	X	X	X	90.0	50.8	103.4	2369	62.7	48.7	79.5	1842	26.4	75.8	80.2	1757
375	X	X	X	X	98.4	55.5	112.9	2490	68.3	53.1	86.5	1941	28.7	82.4	87.2	1855
400	X	X	X	X	106.8	60.3	122.7	2608	74.0	57.5	93.7	2040	31.0	89.1	94.3	1951
425	X	X	X	X	115.4	65.1	132.5	2726	79.7	61.9	101.0	2137	33.4	95.9	101.5	2047
450	X	X	X	X	124.1	70.1	142.5	2841	85.5	66.4	108.3	2234	35.7	102.7	108.8	2142
475	X	X	X	X	132.9	75.0	152.6	2956	91.4	71.0	115.7	2330	38.1	109.6	116.1	2237
500	X	X	X	X	141.8	80.1	162.9	3069	97.3	75.6	123.2	2425	40.6	116.6	123.4	2330
525	X	X	X	X	150.9	85.2	173.3	3181	103.2	80.2	130.7	2519	43.0	123.6	130.9	2423
550	X	X	X	X	160.0	90.3	183.7	3292	109.2	84.9	138.3	2613	45.5	130.7	138.3	2516
575	X	X	X	X	X	X	X	X	115.3	89.6	146.0	2706	47.9	137.8	145.9	2608
600	X	X	X	X	X	X	X	X	121.4	94.3	153.7	2799	50.4	144.9	153.5	2699
625	X	X	X	X	X	X	X	X	127.5	99.0	161.4	2891	52.9	152.2	161.1	2790
650	X	X	X	X	X	X	X	X	133.6	103.8	169.2	2983	55.4	159.4	168.8	2881
675	X	X	X	X	X	X	X	X	139.8	108.6	177.1	3074	58.0	166.7	176.5	2971
700	X	X	X	X	X	X	X	X	146.1	113.5	185.0	3165	60.5	174.0	184.2	3060

Loading District Specifics

	Heavy Plus ²	Heavy	Medium	Light
Horizontal Wind Pressure (lb/ft ²)	4	4	4	9
Radial Ice Thickness (in)	1	½	¼	0
Temperature (F)	0	0	15	30

¹Reflects 1% Sag at 60° F Installation. Messenger is flooded 6.6M (7-strand ¼ inch EHS)

²Not an NESD District