

7. Safe Winding Wire Tension

The normal safety tension standard for copper wire is when the value of permanent set exceeds 0.2% (0.2% yield point).

As the 0.2% yield point of copper wire (soft copper wire) is about 69N/mm², make sure the tension during wire winding is below the safe tension to prevent deterioration of wire performance.

The tensile force of copper wire (soft copper wire) is around 250N/mm², thus a force larger than this will break the wire.

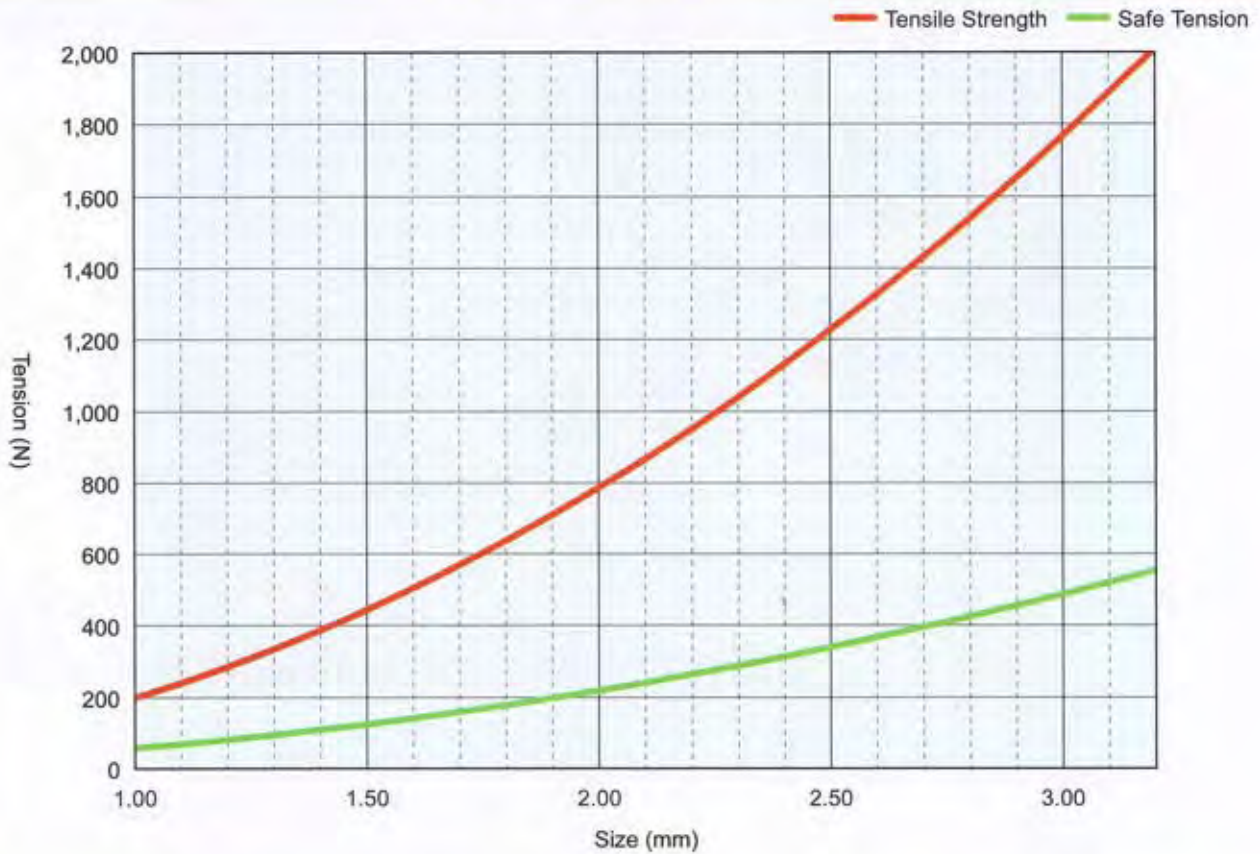
Safe Winding Wire Tension List

Size (mm)	Tension (N)	
	Safe Tension	Tensile Strength
0.020	0.022	0.079
0.025	0.034	0.12
0.030	0.049	0.18
0.035	0.066	0.24
0.040	0.086	0.31
0.05	0.13	0.49
0.06	0.19	0.71
0.07	0.26	0.96
0.08	0.35	1.3
0.09	0.44	1.6
0.10	0.54	2.0
0.11	0.65	2.4
0.12	0.78	2.8
0.13	0.91	3.3
0.14	1.1	3.8
0.15	1.2	4.4
0.16	1.4	5.0
0.17	1.6	5.7
0.18	1.7	6.4
0.19	1.9	7.1
0.20	2.2	7.9
0.21	2.4	8.7
0.22	2.6	9.5
0.23	2.9	10.4
0.24	3.1	11.3
0.25	3.4	12.3
0.26	3.6	13.3
0.27	3.9	14.3
0.28	4.2	15.4
0.29	4.5	16.5
0.30	4.9	17.7
0.32	5.5	20.1
0.35	6.6	24.1
0.37	7.4	26.9

Size (mm)	Tension (N)	
	Safe Tension	Tensile Strength
0.40	8.6	31.4
0.45	10.9	39.8
0.50	13.5	49.1
0.55	16.3	59.4
0.60	19.4	70.7
0.65	22.8	83.0
0.70	26.4	96.2
0.75	30.3	110
0.80	34.5	126
0.85	39.0	142
0.90	43.7	159
0.95	48.7	177
1.0	53.9	196
1.1	65.2	238
1.2	77.6	283
1.3	91.1	332
1.4	106	385
1.5	121	442
1.6	138	503
1.7	156	567
1.8	175	636
1.9	195	709
2.0	216	785
2.1	238	866
2.2	261	950
2.3	285	1,039
2.4	311	1,131
2.5	337	1,227
2.6	364	1,327
2.7	393	1,431
2.8	423	1,539
2.9	453	1,651
3.0	485	1,767
3.2	552	2,011

7. Safe Winding Wire Tension

Safe Tension By Size (1.0~3.2mm)



Safe Tension By Size (1.0mm and below)

