Computing Circular Mil Area for Terminals and Splices

©2011 Tyco Electronics Corporation, a TE Connectivity Ltd. Company
All Rights Reserved
*Trademark

TOOLING ASSISTANCE CENTER 1-800-722-1111
PRODUCT INFORMATION 1-800-522-6752

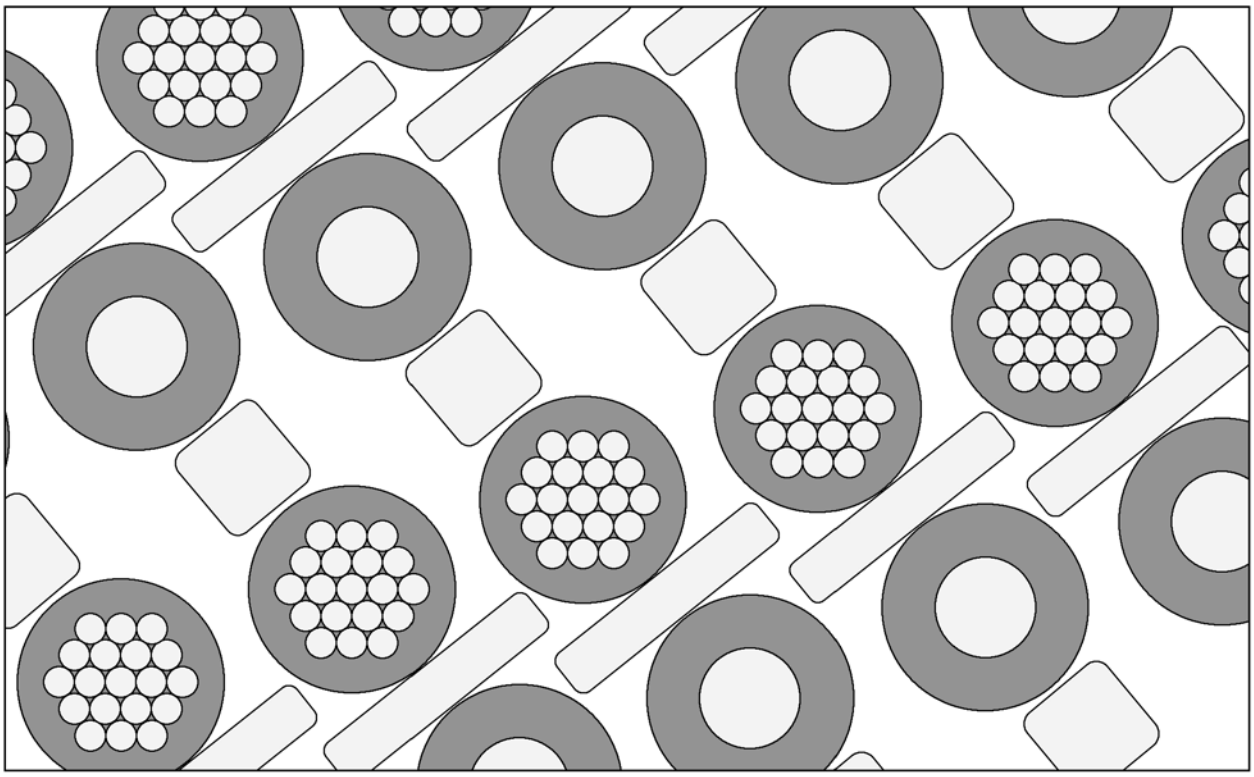
This controlled document is subject to change.
For latest revision and Regional Customer Service, visit our website at www.te.com

TE Connectivity, TE connectivity (logo), and TE (logo) are trademarks. Other logos, product and/or Company names may be trademarks of their respective owners.

REVISION SUMMARY

Since the previous release of this document, the new company logo has been applied.

Computing Circular Mil Area For Terminals And Splice



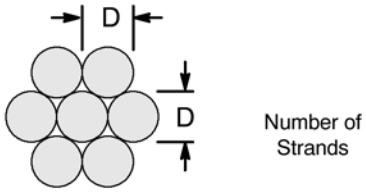
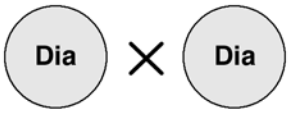
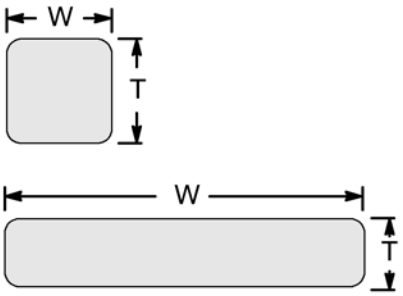
For best results, the proper terminal or splice must be selected not by the “fit" of wire or wires in the terminal barrel, but by the total circular mil area in cross section of the wires used. For this purpose convenient tables have been prepared to assist in the calculation of circular mil areas. When the totals are known, the proper terminal or splice can be determined quickly.

Unusual combinations or special applications should be submitted to our engineering department for size recommendation. In any application, the careful selection of terminals by the circular mil area method will insure the highest possible performance, both electrically and mechanically, in your terminations.

ALWAYS SELECT TERMINALS BY THE CIRCULAR MIL AREA METHOD. For example, a wire size 18 AWG 16-strand conductor (1600 CMA) and a wire size 16 AWG 19-strand conductor (2426 CMA) will have a combined total of 4026 CMA. This total CMA is equivalent to a wire size 14 AWG conductor.

We offer terminals and splices for nearly every need and application. For additional information, contact your Sales Engineer or call Product Information at 1-800-522-6752.

How to Compute Circular Mil Area of Various Wire Shapes

	U.S.CustomaryDimensions	Metric Dimensions
Stranded Wire AWG 	Use Table 1. Read circular mil area directly from table. **Alternate Method** Multiply the diameter of one strand (in mils) by itself, and then multiply the result by the total number of strands. CMA = D^2xN	Use Table 1. Read circular mil area directly from table. **Alternate Method** Multiply the diameter of one strand in millimeters by itself, then by the number of strands, and then by 1550.003. CMA = D^2xNx1550.003
Round Solid Wire AWG 	Use Table 1 or Table 2. Read circular mil area directly from table. **Alternate Method** Multiply the diameter in mils by itself. CMA = D^2	Use Chart 1 or 2. Read circular mil area directly from table. **Alternate Method** Multiply the diameter in millimeters by itself by 1550.003. CMA = D^2x1550.003
Square or Rectangular Wire 	Multiply the width of the wire cross section in mils by the thickness of the wire cross section in mils by 1.2732 and subtract the radius factor included below. CMA = WxTx1.2732 – radius factor	Multiply the width of the wire cross section in millimeters by the thickness in millimeters by 1973.525 and subtract the radius factor included below. CMA = WxTx1973.525 – radius factor

Conversion Table

To Convert From	To	Multily By:
CMA	mm^2	.0005067075
CMA	in^2	.0000007854
mm^2	in^2	.001550003
mm^2	CMA	1973.525

Radius Factor, U.S.Customary●

Radius (in.)	Radius Factor To Subtract (CMA)
.010	110
.012	158
.016	280
.020	438
.026	740
.032	1121
.040	1752
.063	4346
.094	9675

● Radius must be measured.

Radius Factor, Metric●

Radius (mm)	Radius Factor To Subtract (CMA)
0.25	106
0.3	153
0.35	208
0.4	272
0.5	424
0.6	611
0.8	1086
1.2	2444

● Radius must be measured.

Table 1 -- (Wire Size in AWG and mm² to CMA)

CMA	NOMINAL WIRE SIZE		STRANDS			APPROXIMATE CONDUCTOR DIAMETER	
			NO.	DIAMETER			
	AWG	mm^2		inches	mm	inches	mm
3.8	44	0.002	1	0.00195	0.050	0.002	0.051
4.0	44	0.002	1	0.002	0.051	0.002	0.051
4.8	43	0.002	1	0.0022	0.056	0.0022	0.056
6.3	42	0.003	1	0.0025	0.064	0.0025	0.064
7.8	41	0.004	1	0.0028	0.071	0.0028	0.071
9.6	40	0.005	1	0.0031	0.079	0.0031	0.079
12.3	39	0.006	1	0.0035	0.089	0.0035	0.089
15.2	38	0.008	1	0.0039	0.099	0.0039	0.099
16.0	38	0.008	1	0.004	0.102	0.004	0.102
20.2	37	0.010	1	0.0045	0.114	0.0045	0.114
25.0	36	0.013	1	0.005	0.127	0.005	0.127
31.4	35	0.016	1	0.0056	0.142	0.0056	0.142
39.7	34	0.020	1	0.0063	0.160	0.0063	0.160
50.0	33	0.025	1	0.00707	0.180	0.0071	0.180
50.4	33	0.026	1	0.0071	0.180	0.0071	0.180
64.0	32	0.032	1	0.008	0.203	0.008	0.203
79.2	31	0.040	1	0.0089	0.226	0.0089	0.226
100.0	30	0.051	1	0.01	0.254	0.01	0.254
104.0	30	0.053	26	0.002	0.051	0.012	0.305
127.7	29	0.064	1	0.0113	0.287	0.011	0.279
152.1	29	0.077	10	0.0039	0.099	0.013	0.330
158.8	29	0.080	1	0.0126	0.320	0.013	0.330
175.0	28	0.089	7	0.005	0.127	0.015	0.381
182.6	28	0.093	19	0.0031	0.079	0.016	0.406
202	27	0.102	1	0.0142	0.361	0.014	0.356
204	27	0.103	51	0.002	0.051	0.016	0.406
238	26	0.121	6	0.0063	0.160	0.018	0.457
250	26	0.127	26	0.0031	0.079	0.018	0.457
250	26	0.127	10	0.005	0.127	0.018	0.457
251	26	0.127	8	0.0056	0.142	0.018	0.457
253	26	0.128	1	0.0159	0.404	0.016	0.406
256	26	0.130	16	0.004	0.102	0.018	0.457
274	26	0.139	18	0.0039	0.099	0.022	0.558
278	26	0.141	7	0.0063	0.160	0.019	0.483
288	26	0.146	72	0.002	0.051	0.022	0.559
300	26	0.152	3	0.01	0.254	0.02	0.508
304	26	0.154	19	0.004	0.102	0.02	0.508
313	25	0.159	1	0.0177	0.450	0.018	0.457
314	25	0.159	10	0.0056	0.142	0.02	0.508
318	25	0.161	8	0.0063	0.160	0.021	0.533
320	25	0.162	1	0.0179	0.455	0.018	0.457
388	24	0.197	1	0.0197	0.500	0.02	0.508
397	24	0.201	10	0.0063	0.160	0.023	0.584
400	24	0.203	16	0.005	0.127	0.023	0.584
400	24	0.203	4	0.01	0.254	0.023	0.584
403	24	0.204	8	0.0071	0.180	0.023	0.584
404	24	0.205	1	0.0201	0.511	0.02	0.508
408	24	0.207	13	0.0056	0.142	0.023	0.584
408	24	0.207	102	0.002	0.051	0.02	0.508
475	24	0.241	19	0.005	0.127	0.023	0.584

Table 1 -- Continued (Wire Size in AWG and mm² to CMA)

CMA	NOMINAL WIRE SIZE		STRANDS			APPROXIMATE CONDUCTOR DIAMETER	
			NO.	DIAMETER			
	AWG	mm^2		inches	mm	inches	mm
634	22	0.321	8	0.0089	0.226	0.029	0.737
635	22	0.322	16	0.0063	0.160	0.029	0.737
640	22	0.324	10	0.008	0.203	0.029	0.737
640	22	0.324	1	0.0253	0.643	0.025	0.635
650	22	0.329	26	0.005	0.127	0.033	0.838
700	22	0.355	7	0.01	0.254	0.03	0.762
754	22	0.382	19	0.0063	0.160	0.033	0.838
812	21	0.411	1	0.0285	0.724	0.029	0.737
992	20	0.503	1	0.0315	0.800	0.032	0.813
1000	20	0.507	10	0.01	0.254	0.038	0.965
1008	20	0.511	20	0.0071	0.180	0.039	0.991
1024	20	0.519	16	0.008	0.203	0.039	0.991
1024	20	0.519	1	0.032	0.813	0.032	0.813
1024	20	0.519	256	0.002	0.051	0.039	0.991
1025	20	0.519	41	0.005	0.127	0.038	0.965
1032	20	0.523	26	0.0063	0.160	0.039	0.991
1111	20	0.563	7	0.0126	0.320	0.039	0.991
1186	20	0.601	19	0.0079	0.201	0.041	1.041
1289	19	0.653	1	0.0359	0.912	0.036	0.914
1492	18.5	0.756	7	0.0146	0.371	0.047	1.194
1512	18.5	0.766	30	0.0071	0.180	0.047	1.194
1536	18.5	0.778	384	0.002	0.051	0.047	1.194
1536	18.5	0.778	24	0.008	0.203	0.047	1.194
1600	18	0.811	16	0.01	0.254	0.049	1.245
1608	18	0.815	19	0.0092	0.234	0.049	1.245
1617	18	0.819	7	0.0152	0.386	0.042	1.067
1624	18	0.823	1	0.0403	1.024	0.04	1.016
1625	18	0.823	65	0.005	0.127	0.04	1.016
1627	18	0.824	41	0.0063	.0160	0.049	1.245
1639	18	0.830	7	0.0153	0.389	0.042	1.067
1770	18	0.897	7	0.0159	0.404	0.048	1.219
1900	18	0.963	19	0.01	0.254	0.052	1.321
1980	17	1.003	1	0.0445	1.130	0.045	1.143
1999	17	1.013	7	0.0169	0.429	0.047	1.194
2048	17	1.038	32	0.008	0.203	0.047	1.194
2048	17	1.038	512	0.002	0.051	0.049	1.245
2052	17	1.040	1	0.0453	1.151	0.045	1.143
2426	16	1.229	19	0.0113	0.287	0.061	1.549
2521	16	1.277	50	0.0071	0.180	0.059	1.499
2540	16	1.287	16	0.0126	0.320	0.059	1.499
2580	16	1.307	65	0.0063	0.160	0.059	1.499
2581	16	1.308	1	0.0508	1.290	0.051	1.295
2600	16	1.317	26	0.01	0.254	0.061	1.549
2625	16	1.330	105	0.005	0.127	0.059	1.499
2800	16	1.419	7	0.02	0.508	0.061	1.549
2942	15.5	1.491	7	0.0205	0.521	0.059	1.499
2948	15.5	1.494	1	0.0543	1.379	0.054	1.372
3000	15.5	1.520	30	0.01	0.254	0.059	1.499
3073	15.5	1.557	392	0.0028	0.071	0.061	1.549
3260	15	1.652	1	0.0571	1.450	0.057	1.448

Table 1 -- Continued (Wire Size in AWG and mm² to CMA)

CMA	NOMINAL WIRE SIZE		STRANDS			APPROXIMATE CONDUCTOR DIAMETER	
			NO.	DIAMETER			
	AWG	mm^2		inches	mm	inches	mm
3831	14	1.941	19	0.0142	0.361	0.076	1.930
3899	14	1.976	7	0.0236	0.599	0.071	1.803
4079	14	2.067	37	0.0105	0.267	0.073	1.854
4099	14	2.077	7	0.0242	0.615	0.076	1.930
4100	14	2.077	41	0.01	0.254	0.077	1.956
4106	14	2.081	19	0.0147	0.373	0.076	1.930
4109	14	2.082	1	0.0641	1.628	0.064	1.626
4128	14	2.092	26	0.0126	0.320	0.075	1.905
4167	14	2.111	105	0.0063	0.160	0.073	1.854
4234	14	2.145	84	0.0071	0.180	0.074	1.880
4802	13.5	2.433	50	0.0098	0.249	0.087	2.210
4842	13.5	2.453	7	0.0263	0.668	0.079	2.007
4914	13.5	2.490	1	0.0701	1.781	0.07	1.778
5184	13	2.627	1	0.072	1.829	0.072	1.829
6088	12	3.085	19	0.0179	0.455	0.096	2.438
6343	12	3.214	165	0.0062	0.157	0.095	2.413
6475	12	3.281	259	0.005	0.127	0.105	2.667
6500	12	3.294	65	0.01	0.254	0.096	2.438
6503	12	3.295	19	0.0185	0.470	0.092	2.337
6509	12	3.298	41	0.0126	0.320	0.094	2.388
6512	12	3.300	7	0.0305	0.775	0.086	2.184
6529	12	3.308	1	0.0808	2.052	0.081	2.057
6545	12	3.316	37	0.0133	0.338	0.093	2.362
6654	12	3.372	84	0.0089	0.226	0.094	2.388
6946	11.5	3.520	7	0.0315	0.800	0.094	2.388
7856	11.5	3.981	7	0.0335	0.851	0.1	2.540
7985	11.5	4.046	19	0.0205	0.521	0.101	2.565
8064	11.5	4.086	56	0.012	0.305	0.102	2.591
8226	11	4.168	1	0.0907	2.304	0.091	2.311
9072	10	4.597	7	0.036	0.914	0.096	2.438
9472	10	4.799	37	0.016	0.406	0.109	2.769
10080	10	5.108	1	0.1004	2.550	0.1	2.540
10319	10	5.229	37	0.0167	0.424	0.109	2.769
10319	10	5.229	65	0.0126	0.320	0.118	2.997
10365	10	5.252	41	0.0159	0.404	0.122	3.099
10376	10	5.258	7	0.0385	0.978	0.106	2.692
10384	10	5.262	1	0.1019	2.588	0.102	2.591
10404	10	5.272	19	0.0234	0.594	0.117	2.972
10500	10	5.320	105	0.01	0.254	0.116	2.946
10867	10	5.506	7	0.0394	1.001	0.118	2.997
11696	10	5.926	84	0.0118	0.300	0.13	3.302
11710	10	5.933	7	0.0409	1.039	0.128	3.251
11816	10	5.987	1	0.1087	2.761	0.109	2.769
12066	10	6.114	19	0.0252	0.640	0.126	3.200

Table 1 -- Continued (Wire Size in AWG and mm² to CMA)

CMA	NOMINAL WIRE SIZE		STRANDS			APPROXIMATE CONDUCTOR DIAMETER	
			NO.	DIAMETER			
	AWG	mm^2		inches	mm	inches	mm
13087	9	6.5	1	0.1144	2.91	0.114	2.90
13125	9	7	525	.0050	0.13	0.140	3.56
14175	8	7	7	.0450	1.14	0.146	3.71
14368	8	7.5	19	.0275	0.70	0.145	3.68
15595	8	8	7	.0472	1.20	0.142	3.60
15665	8	8	50	.0177	0.45	0.146	3.70
16387	8	8	133	.0111	0.28	0.167	4.24
16473	8	8	37	.0211	0.54	0.150	3.81
16512	8	8	1	.1285	3.26	0.129	3.26
16533	8	8	7	.0486	1.23	0.146	3.71
16535	8	8	19	.0295	0.75	0.148	3.76
16589	8	8	49	.0184	0.47	0.150	3.81
16983	8	8.5	133	.0113	0.29	0.167	4.24
18853	7	10	19	.0315	0.80	0.161	4.10
19719	7	10	80	.0157	0.40	0.165	4.20
19737	7	10	7	.0531	1.35	0.159	4.05
19768	7	10	1	.1406	3.57	0.141	3.57
19796	7	10	49	.0201	0.51	0.161	4.10
26179	6	13	37	.0266	0.68	0.174	4.42
26218	6	13	7	.0612	1.55	0.184	4.67
26244	6	13	1	.1620	4.11	0.162	4.11
26292	6	15	19	.0372	0.94	0.202	5.13
26818	6	14	133	.0142	0.36	0.210	5.33
27783	6	14	7	.0630	1.60	0.189	4.80
31057	5 1/2	16	126	.0157	0.400	0.209	5.30
31329	5 1/2	16	7	.0669	1.700	0.197	5.00
31400	5 1/2	16	1	.1772	4.500	0.177	4.50
32199	5	16	37	.0295	0.750	0.197	5.00
33088	5	15.5	1	.1819	4.620	0.182	4.62
40682	4 1/2	20	41	.0315	0.800	0.236	6.00
41616	4	21	1	.2040	5.182	0.204	5.18
41718	4	21	7	.0772	1.961	0.232	5.89
41771	4	21	37	.0336	0.853	0.240	6.10
41792	4	21	19	.0469	1.191	0.226	5.74
42615	4	21	133	.0179	0.455	0.272	6.90
43356	3 1/2	22	7	.0787	2.000	0.236	6.00
48312	3	25	196	.0157	0.400	0.260	6.60
48867	3	25	783	.0079	0.200	0.280	7.10
49745	3	25	7	.0843	2.140	0.253	6.42
50010	3	25	84	.0244	0.620	0.260	6.60
57205	2 1/2	34	7	.0904	2.296	0.292	7.42
57459	2 1/2	30	7	.0906	2.300	0.272	6.90
66049	2	34	1	.2570	6.528	0.257	6.53
66139	2	34	19	.0590	1.499	0.332	8.43
66500	2	35	665	.0100	0.254	0.345	8.76
66517	2	34	37	.0424	1.077	0.300	7.62
68031	2	35	276	.0157	0.400	0.307	7.80
68857	2	35	19	.0602	1.530	0.301	7.65
69088	2	35	1107	.0079	0.200	0.335	8.50
73400	1 1/2	38	7	.1024	2.600	0.307	7.80

Table 1 -- Continued (Wire Size in AWG and mm² to CMA)

CMA	NOMINAL WIRE SIZE		STRANDS			APPROXIMATE CONDUCTOR DIAMETER	
			NO.	DIAMETER			
	AWG	mm^2		inches	mm	inches	mm
81700	1	41	817	.0100	0.254	0.382	9.70
83600	1	42	836	.0100	0.254	0.386	9.80
84341	1	40	85	.0315	0.800	0.339	8.60
95509	0	50	19	.0709	1.800	0.354	9.00
97610	0	50	396	.0157	0.400	0.406	10.30
98409	0	50	702	.0118	0.300	0.370	9.40
104500	0	53	1045	.0100	0.254	0.431	10.95
106400	0	54	1064	.0100	0.254	0.435	11.05
117680	0	60	19	.0787	2.000	0.394	10.00
133000	00	67	1330	.0100	0.254	0.486	12.34
135023	00	70	19	.0843	2.140	0.421	10.70
139101	00	70	999	.0118	0.300	0.488	12.40
139712	00	70	360	.0197	0.500	0.488	12.40
155959	000	80	19	.0906	2.300	0.453	11.50
167200	000	85	1672	.0100	0.254	0.545	13.84
184343	000	95	475	.0197	0.500	0.571	14.50
185468	000	95	1332	.0118	0.300	0.571	14.50
186972	000	95	19	.0992	2.520	0.496	12.60
199229	0000	100	19	.1024	2.600	0.512	13.00
210900	0000	105	2109	.0100	0.254	0.635	16.13
235959	0000	120	608	.0197	0.500	0.630	16.00
236208	0000	120	37	.0799	2.030	0.571	14.50
247791	0000	125	19	.1142	2.900	0.571	14.50

• Nominal CMA has been “rounded off” for ease of calculation when using multile wires in one termination.

Table 1 -- Addendum (Wire Size in AWG and mm² to CMA)

CMA	NOMINAL WIRE SIZE		STRANDS			APPROXIMATE CONDUCTOR DIAMETER	
			NO.	DIAMETER			
	MCM	mm²		inches	mm	inches	mm
249856	250	127	61	.0640	1.623	0.576	14.63
249864	250	127	91	.0524	1.331	0.576	14.63
249870	250	127	12	.1443	3.665	0.600	15.24
249966	250	127	19	.1147	2.913	0.574	14.58
250003	250	127	37	.0822	2.088	0.575	14.61
299700	300	152	37	.0900	2.29	0.630	16.0
299755	300	152	61	.0701	1.781	0.631	16.03
299823	300	152	91	.0574	1.458	0.631	16.03
299947	300	152	12	.1581	4.016	0.657	14.66
300209	300	152	19	.1257	3.193	0.629	15.98
349560	350	177	61	.0757	1.923	0.681	17.3
349804	350	177	91	.0620	1.575	0.682	17.32
349875	350	177	19	.1357	3.447	0.679	17.25
350072	350	177	12	.1708	4.338	0.710	18.03
350290	350	177	37	.0973	2.471	0.681	17.3
400026	400	203	19	.1451	3.686	0.726	18.44
400192	400	203	37	.1040	2.642	0.728	18.49
400221	400	203	61	.0810	2.057	0.729	18.49
400008	400	203	91	.0663	1.684	0.729	18.49
499868	500	253	19	.1622	4.12	0.811	20.6
499590	500	253	37	.1162	2.951	0.813	20.65
499605	500	253	61	.0905	2.299	0.815	20.7
499664	500	253	91	.0741	1.882	0.815	20.7
599401	600	304	127	.0687	1.745	0.893	22.68
599596	600	304	37	.1273	3.233	0.891	22.63
600003	600	304	91	.0812	2.062	0.893	22.68
600279	600	304	61	.0992	2.52	0.893	22.68
699216	700	355	127	.0742	1.885	0.965	24.51
699531	700	355	37	.1375	3.493	0.963	24.46
699695	700	355	61	.1071	2.72	0.964	24.49
699907	700	355	91	.0877	2.228	0.965	24.51
750227	750	405	61	.1109	2.817	0.998	25.35
750262	750	405	91	.0908	2.306	0.999	25.37
750277	750	405	37	.1424	3.617	0.997	25.32
749096	750	405	127	.0768	1.951	0.998	25.35
799533	800	456	37	.1470	3.734	1.029	26.14
799725	800	456	61	.1145	2.908	1.031	26.19
800654	800	456	127	.0794	2.017	1.032	26.21
800658	800	456	91	.0938	2.383	1.032	26.21
999197	1000	507	127	.0887	2.253	1.153	29.29
999424	1000	507	61	.1280	3.251	1.152	29.26
999457	1000	507	91	.1048	2.662	1.153	29.29
1000012	1000	507	37	.1644	4.176	1.151	29.24

Table 2 -- (Solid Wire)

U.S. Customary Dimensions

Use to convert wire size to inches of diameter and CMA. To read mils direct, move decimal point three places to the right.

AWG	Diameter inches	CMA●	AWG	Diameter inches	CMA●
4/0	.460	212,000	19	.036	1,290
3/0	.410	168,000	20	.032	1,020
2/0	.365	133,000	21	.0285	810
1/0	.325	106,000	22	.0253	642
1	.289	83,700	23	.0226	509
2	.258	66,400	24	.0201	404
3	.229	52,600	25	.0179	320
4	.204	41,700	26	.0159	254
5	.182	33,100	27	.0142	202
6	.162	26,300	28	.0126	160
7	.144	20,800	29	.0113	127
8	.128	16,500	30	.0100	101
9	.114	13,100	31	.0089	79.7
10	.102	10,400	32	.0080	63.2
11	.091	8,230	33	.0071	50.1
12	.081	6,530	34	.0063	39.8
13	.072	5,180	35	.0056	31.5
14	.064	4,110	36	.0050	25.0
15	.057	3,260	37	.0045	19.8
16	.051	2,580	38	.0040	15.7
17	.045	2,050	39	.0035	12.5
18	.040	1,620	40	.0031	9.9

Metric Dimensions

Use to convert wire size to millimeters of diameter and CMA.

mm^2	Diameter mm	CMA●	mm^2	Diameter mm	CMA●
113.1	12	223,000	0.6362	0.9	1,260
78.54	10	155,000	0.5027	0.8	992
63.62	9	125,000	0.3848	0.7	759
50.27	8	99,200	0.3318	0.65	655
38.48	7	75,900	0.2827	0.6	558
33.18	6.5	65,500	0.2376	0.55	469
28.27	6	55,800	0.1964	0.5	338
23.76	5.5	46,900	0.159	0.45	314
19.64	5	38,800	0.1257	0.4	248
15.90	4.5	31,400	0.09621	0.35	190
12.57	4	24,800	0.08042	0.32	159
9.621	3.5	19,000	0.06605	0.29	130
8.042	3.2	15,900	0.05309	0.26	105
6.605	2.9	13,000	0.04155	0.23	82
5.309	2.6	10,500	0.03142	0.2	62
4.155	2.3	8,200	0.02545	0.18	50.2
3.142	2	6,200	0.02011	0.16	39.7
2.545	1.8	5,020	0.01539	0.14	30.4
2.011	1.6	3,970	0.01131	0.12	22.3
1.539	1.4	3,040	0.00785	0.1	15.5
1.131	1.2	2,230			
0.7854	1	1,550			

● Nominal CMA has been “rounded off” for ease of calculation when using multiple wires in one termination.

Table 3 -- (CMA Range Tables)

Use to select the proper size terminals or splices.

Terminal Connector Size	CMA Range	Terminal Connector Size	CMA Range
26–22	202– 810	6	20,800– 33,100
24–20 Heavy Duty (HD)	320– 1,290	4	33,100– 52,600
22–16	509– 3,260	2	52,600– 83,700
22–14	509– 5,180	1/0	83,700–119,500
20–16 HD	810– 3,260	2/0	119,500–150,500
16–14	2,050– 5,180	3/0	150,500–190,000
16–14 HD	2,050– 5,180	4/0	190,000–231,000
16–10	2,050–13,100	250–300 MCM	231,000–300,000
14–12	3,260– 8,230	300–350 MCM	300,000–380,000
12–10	5,180–13,100	400 MCM	380,000–478,000
8	13,100–20,800	500–600 MCM	478,000–600,000

Use to select the proper size AMPOWER* terminals or splices.

Terminal Splice Marking	CMA Range	Terminal Splice Marking	CMA Range
6	20,800– 33,100	400	375,000– 450,000
4	33,100– 52,600	500	450,000– 550,000
2	52,600– 83,700	600	550,000– 650,000
1/0	83,700–119,500	700	650,000– 750,000
2/0	119,500–150,500	800	750,000– 850,000
3/0	150,500–190,000	900	850,000– 950,000
4/0	190,000–231,000	1000	950,000–1,125,000
250	231,000–275,000	1250	1,125,000–1,300,000
300	275,000–325,000	1500	1,300,000–1,600,000
350	325,000–375,000		

Table 4 -- (CMA and Diameter for Magnet Wire Size 42 through 8 AWG)

AWG Bare Wire	Bare Wire Diameter		Bare CMA	Wire Single Film Coated Dia.		Circular Mil Area Single Film Coated	Heavy Film Coated Dia.		CMA Heavy Film Coated
	inches	mm		inches	mm		inches	mm	
42	.0025	0.06	6	.0028	0.07	8	.0030	0.08	9
41	.0028	0.07	8	.0031	0.08	10	.0034	0.09	12
40	.0031	0.08	10	.0035	0.09	12	.0038	0.10	14
39	.0035	0.09	12	.0039	0.10	15	.0043	0.11	18
38	.0040	0.10	16	.0045	0.11	20	.0049	0.12	24
37	.0045	0.11	20	.0050	0.13	25	.0055	0.14	30
36	.0050	0.13	25	.0056	0.14	31	.0060	0.15	36
35	.0056	0.14	31	.0062	0.16	38	.0067	0.17	45
34	.0063	0.16	40	.0069	0.18	48	.0075	0.19	56
33	.0071	0.18	50	.0077	0.20	59	.0085	0.22	72
32	.0080	0.20	64	.0084	0.21	71	.0095	0.24	90
31	.0089	0.23	79	.0092	0.23	85	.0105	0.27	110
30 1/2	.0095	0.24	90	.0099	0.25	98	.0111	0.28	123
30	.0100	0.25	100	.0106	0.27	112	.0116	0.29	135
29 1/2	.0107	0.27	115	.0114	0.29	130	.0123	0.31	151
29	.0113	0.29	128	.0120	0.30	144	.0130	0.33	169
28 1/2	.0120	0.30	144	.0126	0.32	159	.0137	0.35	187
28	.0126	0.32	159	.0136	0.35	185	.0144	0.37	207
27 1/2	.0134	0.34	180	.0144	0.37	207	.0153	0.39	234
27	.0142	0.36	202	.0152	0.39	231	.0161	0.41	259
26 1/2	.0151	0.38	225	.0160	0.41	256	.0170	0.43	289
26	.0159	0.40	253	.0170	0.43	289	.0179	0.45	320
25 1/2	.0169	0.43	289	.0180	0.46	324	.0190	0.48	361
25	.0179	0.45	320	.0190	0.48	361	.0200	0.51	400
24 1/2	.0190	0.48	361	.0200	0.51	400	.0212	0.54	449
24	.0201	0.51	404	.0213	0.54	455	.0223	0.57	497
23 1/2	.0214	0.54	458	.0226	0.57	511	.0236	0.60	557
23	.0226	0.57	511	.0238	0.60	566	.0249	0.63	620
22 1/2	.0240	0.61	576	.0252	0.64	635	.0263	0.67	692
22	.0253	0.64	640	.0266	0.68	708	.0277	0.70	767
21 1/2	.0269	0.68	724	.0282	0.72	795	.0293	0.74	858
21	.0285	0.72	812	.0298	0.76	888	.0310	0.79	961
20 1/2	.0303	0.77	918	.0315	0.80	992	.0328	0.83	1,076
20	.0320	0.81	1,024	.0334	0.85	1,116	.0346	0.88	1,197
19 1/2	.0340	0.86	1,156	.0353	0.90	1,246	.0365	0.93	1,340
19	.0359	0.91	1,289	.0373	0.95	1,391	.0386	0.98	1,490
18 1/2	.0381	0.97	1,452	.0395	1.00	1,560	.0409	1.04	1,673
18	.0403	1.02	1,624	.0418	1.06	1,747	.0431	1.09	1,858
17 1/2	.0428	1.09	1,832	.0443	1.13	1,962	.0456	1.16	2,079
17	.0453	1.15	2,052	.0468	1.19	2,190	.0482	1.22	2,323
16 1/2	.0481	1.22	2,314	.0496	1.26	2,460	.0510	1.30	2,601
16	.0508	1.29	2,581	.0524	1.33	2,746	.0538	1.37	2,894

Table 4 -- CMA and Diameter for Magnet Wire Size 42 through 8 AWG)

AWG Bare Wire	Bare Wire Diameter		Bare CMA	Wire Single Film Coated Dia.		Circular Mil Area Single Film Coated	Heavy Film Coated Dia.		CMA Heavy Film Coated
	inches	mm		inches	mm		inches	mm	
15 1/2	.0540	1.37	2,916	.0560	1.42	3,136	.0570	1.45	3,249
15	.0571	1.45	3,260	.0587	1.49	3,446	.0602	1.53	3,624
14 1/2	.0606	1.54	3,672	.0622	1.58	3,869	.0639	1.62	4,082
14	.0641	1.63	4,109	.0658	1.67	4,220	.0675	1.71	4,556
13 1/2	.0681	1.73	4,638	.0698	1.77	4,872	.0711	1.81	5,055
13	.0720	1.83	5,184	.0738	1.87	5,446	.0749	1.90	5,670
12 1/2	.0764	1.94	5,837	.0783	1.99	6,131	.0793	2.01	6,188
12	.0808	2.05	6,529	.0827	2.10	6,839	.0838	2.13	7,090
11 1/2	.0858	2.18	7,362	.0877	2.23	7,691	.0888	2.26	7,885
11	.0907	2.30	8,226	.0927	2.35	8,593	.0938	2.38	8,892
10 1/2	.0963	2.35	9,274	.0983	2.50	9,663	.0994	2.52	9,880
10	.1019	2.59	10,384	.1040	2.64	10,820	.1050	2.67	11,151
9	.1144	2.91	13,087	.1166	2.96	13,600	.1177	2.99	13,971
8	.1285	3.26	16,512	.1307	3.32	17,080	.1318	3.35	17,530

Table 5 -- Decimal Inch to Millimeter; Use for Measuring Crimp Heights

INCHES	INCHES									
	0	.001	.002	.003	.004	.005	.006	.007	.008	.009
	MILLIMETER									
0	0	0.0254	0.0508	0.0762	0.1016	0.127	0.1524	0.1778	0.2032	0.2286
.01	0.254	0.2794	0.3048	0.3302	0.3556	0.381	0.4064	0.4318	0.4572	0.4826
.02	0.508	0.5334	0.5588	0.5842	0.6096	0.635	0.6604	0.6858	0.7112	0.7366
.03	0.762	0.7874	0.8128	0.8382	0.8636	0.889	0.9144	0.9398	0.9662	0.9906
.04	1.016	1.0414	1.0668	1.0922	1.1176	1.143	1.1684	1.1938	1.2192	1.2446
.05	1.27	1.2954	1.3208	1.3462	1.3716	1.397	1.4224	1.4478	1.4732	1.4986
.06	1.524	1.5494	1.5748	1.6002	1.6256	1.651	1.6764	1.7018	1.7272	1.7526
.07	1.778	1.8034	1.8288	1.8542	1.8796	1.905	1.9304	1.9558	1.9812	2.0066
.08	2.032	2.0574	2.0828	2.1082	2.1336	2.159	2.1844	2.2098	2.2352	2.2606
.09	2.286	2.3114	2.3368	2.3622	2.3876	2.413	2.4384	2.4638	2.4892	2.5146
.10	2.54	2.5654	2.5908	2.6162	2.6416	2.667	2.6924	2.7178	2.7432	2.7686
.11	2.794	2.8194	2.8448	2.8702	2.8956	2.921	2.9464	2.9718	2.9972	3.0226
.12	3.048	3.0734	3.0988	3.1242	3.1496	3.175	3.2004	3.2258	3.2512	3.2766
.13	3.302	3.3274	3.3528	3.3782	3.4036	3.429	3.4544	3.4798	3.5052	3.5306
.14	3.556	3.5814	3.6068	3.6322	3.6576	3.683	3.7084	3.7338	3.7592	3.7846
.15	3.81	3.8354	3.8608	3.8862	3.9116	3.937	3.9624	3.9878	4.0132	4.0386
.16	4.064	4.0894	4.1148	4.1402	4.1656	4.191	4.2164	4.2418	4.2672	4.2926
.17	4.318	4.3434	4.3688	4.3942	4.4196	4.445	4.4704	4.4958	4.5212	4.5466
.18	4.572	4.5974	4.6228	4.6482	4.6736	4.699	4.7244	4.7498	4.7752	4.8006
.19	4.826	4.8514	4.8768	4.9022	4.9276	4.953	4.9784	5.0038	5.0292	5.0546
.20	5.08	5.1054	5.1308	5.1562	5.1816	5.207	5.2324	5.2578	5.2832	5.3086
.21	5.334	5.3594	5.3848	5.4102	5.4356	5.461	5.4864	5.5118	5.5372	5.5626
.22	5.588	5.6134	5.6388	5.6642	5.6896	5.715	5.7404	5.7658	5.7912	5.8166
.23	5.842	5.8674	5.8928	5.9182	5.9436	5.969	5.9944	6.0198	6.0452	6.0706
.24	6.096	6.1214	6.1468	6.1722	6.1976	6.223	6.2484	6.2738	6.2992	6.3246
.25	6.35	6.3754	6.4008	6.4262	6.4516	6.477	6.5024	6.5278	6.5532	6.5786
.26	6.604	6.6294	6.6548	6.6802	6.7056	6.731	6.7564	6.7818	6.8072	6.8326
.27	6.858	6.8834	6.9088	6.9342	6.9596	6.985	7.0104	7.0358	7.0612	7.0866
.28	7.112	7.1374	7.1628	7.1882	7.2136	7.239	7.2644	7.2898	7.3152	7.3406
.29	7.366	7.3914	7.4168	7.4422	7.4676	7.493	7.5184	7.5438	7.5692	7.5946
.30	7.62	7.6454	7.6708	7.6962	7.7216	7.747	7.7724	7.7978	7.8232	7.8486
.31	7.874	7.8994	7.9248	7.9502	7.9756	8.001	8.0264	8.0518	8.0772	8.1026
.32	8.128	8.1534	8.1788	8.2042	8.2296	8.255	8.2804	8.3058	8.3312	8.3566
.33	8.382	8.4074	8.4328	8.4582	8.4836	8.509	8.5344	8.5598	8.5852	8.6106
.34	8.636	8.6614	8.6868	8.7122	8.7376	8.763	8.7884	8.8138	8.8392	8.8646
.35	8.89	8.9154	8.9408	8.9662	8.9916	9.017	9.0424	9.0678	9.0932	9.1186
.36	9.144	9.1694	9.1948	9.2202	9.2456	9.271	9.2964	9.3218	9.3472	9.3726
.37	9.398	9.4234	9.4488	9.4742	9.4996	9.525	9.5504	9.5758	9.6012	9.6266
.38	9.652	9.6774	9.7028	9.7282	9.7536	9.779	9.8044	9.8298	9.8552	9.8806
.39	9.906	9.9314	9.9568	9.9822	10.0076	10.033	10.0584	10.0838	10.1092	10.1346
.40	10.16	10.1854	10.2108	10.2362	10.2616	10.287	10.3124	10.3378	10.3632	10.3886
.41	10.414	10.4394	10.4648	10.4902	10.5156	10.541	10.5664	10.5918	10.6172	10.6426
.42	10.668	10.6934	10.7188	10.7442	10.7696	10.795	10.8204	10.8458	10.8712	10.8966
.43	10.922	10.9474	10.9728	10.9982	11.0236	11.049	11.0744	11.0998	11.1252	11.1506
.44	11.176	11.2014	11.2268	11.2522	11.2776	11.303	11.3284	11.3538	11.3792	11.4046
.45	11.43	11.4554	11.4808	11.5062	11.5316	11.557	11.5824	11.6078	11.6332	11.6586
.46	11.684	11.7094	11.7348	11.7602	11.7856	11.811	11.8364	11.8618	11.8872	11.9126
.47	11.938	11.9634	11.9888	12.0142	12.0396	12.065	12.0904	12.1158	12.1412	12.1666
.48	12.192	12.2174	12.2428	12.2682	12.2936	12.319	12.3444	12.3698	12.3952	12.4206
.49	12.446	12.4714	12.4968	12.5222	12.5476	12.573	12.5984	12.6238	12.6492	12.6746

Table 5 -- Decimal Inch to Millimeter; Use for Measuring Crimp Heights

INCHES	INCHES									
	0	.001	.002	.003	.004	.005	.006	.007	.008	.009
	MILLIMETER									
.50	12.7	12.7254	12.7508	12.7762	12.8016	12.827	12.8524	12.8778	12.9032	12.9286
.51	12.954	12.9794	13.0048	13.0302	13.0556	13.081	13.1064	13.1318	13.1572	13.1826
.52	13.208	13.2334	13.2588	13.2842	13.3096	13.335	13.3604	13.3858	13.4112	13.4366
.53	13.462	13.4874	13.5128	13.5382	13.5636	13.589	13.6144	13.6398	13.6652	13.6906
.54	13.716	13.7414	13.7668	13.7922	13.8176	13.843	13.8684	13.8938	13.9192	13.9446
.55	13.97	13.9954	14.0208	14.0462	14.0716	14.097	14.1224	14.1478	14.1732	14.1986
.56	14.224	14.2494	14.2748	14.3002	14.3256	14.351	14.3764	14.4018	14.4272	14.4526
.57	14.478	14.5034	14.5288	14.5542	14.5796	14.605	14.6304	14.6558	14.6812	14.7066
.58	14.732	14.7574	14.7828	14.8082	14.8336	14.859	14.8844	14.9098	14.9352	14.9606
.59	14.986	15.0114	15.0368	15.0622	15.0876	15.113	15.1384	15.1638	15.1892	15.2146
.60	15.24	15.2654	15.2908	15.3162	15.3416	15.367	15.3924	15.4178	15.4432	15.4686
.61	15.494	15.5194	15.5448	15.5702	15.5956	15.621	15.6464	15.6718	15.6972	15.7226
.62	15.748	15.7734	15.7988	15.8242	15.8496	15.875	15.9004	15.9258	15.9512	15.9766
.63	16.002	16.0274	16.0528	16.0782	16.1036	16.129	16.1544	16.1798	16.2052	16.2306
.64	16.256	16.2814	16.3068	16.3322	16.3576	16.383	16.4084	16.4338	16.4592	16.4846
.65	16.51	16.5354	16.5608	16.5862	16.6116	16.637	16.6624	16.6878	16.7132	16.7386
.66	16.764	16.7894	16.8148	16.8402	16.8656	16.891	16.9164	16.9418	16.9672	16.9926
.67	17.018	17.0434	17.0688	17.0942	17.1196	17.145	17.1704	17.1958	17.2212	17.2466
.68	17.272	17.2974	17.3228	17.3482	17.3736	17.399	17.4244	17.4498	17.4752	17.5006
.69	17.526	17.5514	17.5768	17.6022	17.6276	17.653	17.6784	17.7038	17.7292	17.7546
.70	17.78	17.8054	17.8308	17.8562	17.8816	17.907	17.9324	17.9578	17.9832	18.0086
.71	18.034	18.0594	18.0848	18.1102	18.1356	18.161	18.1864	18.2118	18.2372	18.2626
.72	18.288	18.3134	18.3388	18.3642	18.3896	18.415	18.4404	18.4658	18.4912	18.5166
.73	18.542	18.5674	18.5928	18.6182	18.6436	18.669	18.6944	18.7198	18.7452	18.7706
.74	18.796	18.8214	18.8468	18.8722	18.8976	18.923	18.9484	18.9738	18.9992	19.0246
.75	19.05	19.0754	19.1008	19.1262	19.1516	19.177	19.2024	19.2024	19.2532	19.2786
.76	19.304	19.3294	19.3548	19.3802	19.4056	19.431	19.4564	19.4818	19.5072	19.5326
.77	19.558	19.5834	19.6088	19.6342	19.6596	19.685	19.7104	19.7358	19.7612	19.7866
.78	19.812	19.8374	19.8628	19.8882	19.9136	19.939	19.9644	19.9898	20.0152	20.0406
.79	20.066	20.0914	20.1168	20.1422	20.1676	20.193	20.2184	20.2438	20.2692	20.2946
.80	20.32	20.3454	20.3708	20.3962	20.4216	20.447	20.4724	20.4978	20.5232	20.5486
.81	20.574	20.5994	20.6248	20.6502	20.6756	20.701	20.7264	20.7518	20.7772	20.8026
.82	20.828	20.8534	20.8788	20.9042	20.9296	20.955	20.9804	21.0058	21.0312	21.0566
.83	21.082	21.1074	21.1328	21.1582	21.1836	21.209	21.2344	21.2598	21.2852	21.3106
.84	21.336	21.3614	21.3868	21.4122	21.4376	21.463	21.4884	21.5138	21.5392	21.5646
.85	21.59	21.6154	21.6408	21.6662	21.6916	21.717	21.7424	21.7678	21.7932	21.8186
.86	21.844	21.8694	21.8948	21.9202	21.9456	21.971	21.9964	22.0218	22.0472	22.0726
.87	22.098	22.1234	22.1488	22.1742	22.1996	22.225	22.2504	22.2758	22.3012	22.3266
.88	22.352	22.3774	22.4028	22.4282	22.4536	22.479	22.5044	22.5298	22.5552	22.5806
.89	22.606	22.6314	22.6568	22.6822	22.7076	22.733	22.7584	22.7838	22.8092	22.8346
.90	22.86	22.8854	22.9108	22.9362	22.9616	22.987	23.0124	23.0378	23.0632	23.0886
.91	23.114	23.1394	23.1648	23.1902	23.2156	23.241	23.2664	23.2918	23.3172	23.3426
.92	23.368	23.3934	23.4188	23.4442	23.4696	23.495	23.5204	23.5458	23.5712	23.5966
.93	23.622	23.6474	23.6728	23.6982	23.7236	23.749	23.7744	23.7998	23.8252	23.8506
.94	23.876	23.9014	23.9268	23.9522	23.9776	24.003	24.0284	24.0538	24.0792	24.1046
.95	24.13	24.1554	24.1808	24.2062	24.2316	24.257	24.2824	24.3078	24.3332	24.3586
.96	24.384	24.4094	24.4348	24.4602	24.4856	24.511	24.5364	24.5618	24.5872	24.6126
.97	24.638	24.6634	24.6888	24.7142	24.7396	24.765	24.7904	24.8158	24.8412	24.8666
.98	24.892	24.9174	24.9428	24.9682	24.9936	25.019	25.0444	25.0698	25.0952	25.1206
.99	25.146	25.1714	25.1968	25.222	25.2476	25.273	25.2984	25.3238	25.3492	25.3746
1.00	25.4									