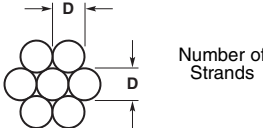
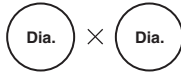
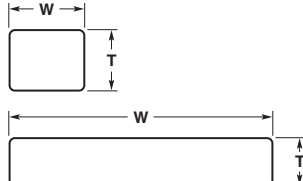


Wire Calculations and Instructions

How to Compute Circular Mil Area of Various Wire Shapes

	U.S. Customary Dimensions	Metric Dimensions
<p>Stranded Wire AWG</p> 	<p>Use Chart 1. Read circular mil area directly from table.</p> <p>Alternate Method Multiply the diameter of one strand (in mils) by itself, and then multiply the result by the total number of strands. $CMA = D^2 \times N$</p>	<p>Use Chart 1. Read circular mil area directly from table.</p> <p>Alternate Method Multiply the diameter of one strand in millimeters by itself, and then by the number of strands, and then by 1500.003. $CMA = D^2 \times N \times 1550.003$</p>
<p>Round Solid Wire AWG</p> 	<p>Use chart 1 or 2. Read circular mil area directly from table.</p> <p>Alternate Method Multiply the diameter in mils by itself. $CMA = D^2$</p>	<p>Use chart 1 or 2. Read circular mil area directly from table.</p> <p>Alternate Method Multiply the diameter in millimeters by itself by 1550.003. $CMA = D^2 \times 1550.003$</p>
<p>Square or Rectangular Wire</p> 	<p>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. $CMA = W \times T \times 1.2732 - \text{radius factor}$</p>	<p>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. $CMA = W \times T \times 1973.525 - \text{radius factor}$</p>

Conversion Table

To Convert From	To	Multiply By
CMA	mm ²	0.0005067075
CMA	in ²	0.000007854
mm ²	in ²	0.0015500030
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
.940	9675

Radius Factor, Metric

Radius (mm)	Radius Factor To Subtract (CMA)
0.25	106
0.30	153
0.35	208
0.40	272
0.50	424
0.60	611
0.80	1086
1.20	2444
0.94	9675

How To Compute Circular Mil Area

How to Compute Circular Mil Area of Various Wire Shapes (Continued)

**Circular Mil Area (CMA) /
Nominal Wire Sizes**

CMA	Normal Wire Size		No.	Strands		Approximate Conductor Diameter	
	AWG	mm ²		Diameter		Inch	mm
				Inch	mm		
4.0	44	0.002	1	.00195	0.050	.002	0.051
16.0	38	0.008	1	.0040	0.102	.004	0.102
64.0	32	0.032	1	.0080	0.203	.008	0.203
175.0	28	0.089	7	.0050	0.127	.015	0.381
388	24	0.197	1	.0197	0.500	.020	0.508
397	24	0.201	10	.0063	0.160	.023	0.584
400	24	0.203	16	.0050	0.127	.023	0.584
400	24	0.203	4	.0100	0.254	.023	0.584
403	24	0.204	8	.0071	0.180	.023	0.584
634	22	0.321	8	.0089	0.226	.029	0.737
635	22	0.322	16	.0063	0.160	.029	0.737
640	22	0.324	10	.0080	0.203	.029	0.737
640	22	0.324	1	.0253	0.643	.025	0.635
992	20	0.503	1	.0315	0.800	.032	0.813
1000	20	0.507	10	.0100	0.254	.038	0.965
1008	20	0.511	20	.0071	0.180	.039	0.991
1024	20	0.519	16	.0080	0.203	.039	0.991
1600	18	0.811	16	.0100	0.254	.049	1.245
1608	18	0.815	19	.0092	0.234	.049	1.245
1617	18	0.819	7	.0152	0.386	.042	1.067
1624	18	0.823	1	.0403	1.024	.040	1.016
2521	16	1.277	50	.0071	0.180	.059	1.499
2540	16	1.287	16	.0126	0.320	.059	1.499
2581	16	1.308	1	.0508	1.290	.051	1.295
2800	16	1.419	7	.0200	0.508	.061	1.549
3831	14	1.941	19	.0142	0.361	.076	1.930
4099	14	2.077	7	.0242	0.615	.076	1.930
4109	14	2.082	1	.0641	1.628	.064	1.626
6503	12	3.295	19	.0185	0.470	.092	2.337
6512	12	3.300	7	.0305	0.775	.086	2.184
6529	12	3.308	1	.0808	2.052	.081	2.057
9072	10	4.597	7	.0360	0.914	.096	2.438
10080	10	5.108	1	.1004	2.550	.100	2.540
10404	10	5.272	19	.0234	0.594	.117	2.972
16512	8	8	1	.1285	3.260	.129	3.260
16533	8	8	7	.0486	1.230	.146	3.710
16535	8	8	19	.0295	0.750	.148	3.760
262218	6	13	7	.0612	1.550	.184	4.670
26244	6	13	1	.1620	4.110	.162	4.110
26292	6	15	19	.0372	0.940	.202	5.130
41616	4	21	1	.2040	5.182	.204	5.180
41718	4	21	7	.0772	1.961	.232	5.890
41792	4	21	19	.0469	1.191	.226	5.740
95509	0	50	19	.0709	1.800	.354	9.000
97610	0	50	396	.0157	0.400	.406	10.300
98409	0	50	702	.0118	0.300	.370	9.400