

# *denny myers sales*

## Conductor Calculations for Various Conductor Metals and Fabrications

Conductor Resistance = (Strand Factor) \* 1000 \* ((Ohms/cmft)/((1000\*OD)^2) \* (# of Strands))  
 Conductor Resistance = Copper Resistance \* (Ohms/cmft<sub>new metal</sub>)/(Ohms/cmft<sub>copper</sub>)  
 Conductor Weight = OD^2 \* Specific Gravity \* 340 \* Number of Strands \* Strand Factor  
 Conductor Weight = Copper conductor weight \* % Weight of Copper

Solid Conductor Data	
AWG	Diameter
40	0.0031
38	0.0040
36	0.0050
34	0.0063
32	0.0080
30	0.0100
28	0.0126
26	0.0159
24	0.0201
22	0.0253
20	0.0320
19	0.0359
18	0.0403
17	0.0453
16	0.0508
15	0.0571
14	0.0641
13	0.0720
12	0.0808
11	0.0907
10	0.1019
9	0.1144
8	0.1285
6	0.1620
4	0.2043
2	0.2576
1	0.2893
0	0.3249
00	0.3648
000	0.4096
0000	0.4600

Weight Factors			
Metal	% Weight of Copper	Specific Gravity	Ohms/cmft @ 20C
#11 Alloy	100%	8.89	
10% Nickel Plated Copper	100%	8.89	11.785
2% Nickel Plated Copper	100%	8.89	10.803
27% Nickel Plated Copper	100%	8.89	14.607
30% Copperweld	90%	8.00	
4% Nickel Plated Copper	100%	8.89	11.033
40% Copperweld	92%	8.18	27
7% Nickel Plated Copper	100%	8.89	11.397
'A' Nickel	100%	8.89	60
Alumel	96%	8.53	177
Aluminum	30%	2.67	15.97
Bare Copper	100%	8.89	10.371
Bronze	100%	8.89	
Chromel	98%	8.71	425
Chromium	80%	7.11	
Constantan	100%	8.89	294
'D' Nickel	99%	8.80	102
Galvanized Steel	90%	8.00	
Iron	88%	7.82	71
Monel	101%	8.98	290
Nichrome V	96%	8.53	650
Nickel Plated Iron	89%	7.91	57
Nickrothal 6 (Nichrome Tophet C)	94%	8.36	675
Nickrothal 8 (Tophet A)	96%	8.53	650
Silver Plated Copper	100%	8.89	10.371
Stainless Steel	90%	8.00	
Tinned Copper	100%	8.89	10.371

Strand Factors	
Construction	Factor
Solid	1.00
7 X	1.04
19 X	1.05
7 X 7	1.06
19 X 7	1.07
37 X 7	1.07
61 X 7	1.07

Date	Initials	Comment
07.10.03	dsm	Original